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GENERAL  ELECTRIC

Lighting

CANADIAN GENERAL ELECTRIC COMPANY
LIMITED



CANADIAN GENERAL TRADING MAINTAINS
A FULL STOCK OF ALL THE LATEST
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GENERAL  **ELECTRIC**

LIGHTING EQUIPMENT

for

COMMERCIAL • INDUSTRIAL

AND

FLOODLIGHTING REQUIREMENTS

CATALOGUE

49L

CANADIAN GENERAL ELECTRIC COMPANY
LIMITED

HEAD OFFICE — TORONTO

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Canadian General Electric Company Limited

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HEAD OFFICE



TORONTO, ONT.

GENERAL INFORMATION

In compiling this publication, Canadian General Electric Company Limited has endeavoured to make it a complete and up-to-date reference book of standard lighting equipment, illustrating and describing material for which there is a constant demand. Special catalogues, bulletins and prices covering material not fully described nor shown in this book will be furnished on request.

PRICES

The prices shown in this book agree with the latest correct list prices at time of issue, but are approximate only. They are not offered as a quotation, and are subject to change without notice.

ORDERING

Always specify catalogue number and give a description of the equipment required. Address the Canadian General Electric office nearest you. Orders should be kept separate from all other correspondence to assure prompt attention to both.

SHIPMENTS

Routing or shipping instructions should be specified on each order. If specific instructions are not given we shall use our best judgment in selecting the route, but we accept no responsibility for extra cartage or handling expense at destination.

We do not hold ourselves responsible for any loss, damage or pilferage sustained in transit, and claims of such character should be promptly entered by the purchaser against transportation companies.

RETURNING GOODS

Goods must not be returned for credit or exchange without first consulting us for shipping instructions.

LISTING

Dimensions are given for reference only, and before such figures are used in plans, specifications or constructions, samples of the material should be obtained, and figures confirmed by correspondence. Canadian General Electric Company Limited reserves the right to change dimensions and specifications of material listed in this book without notice.

Packed shipping weights are given throughout this book. These are average weights only and may vary slightly. Consequently, we do not guarantee absolute accuracy but offer them as close approximations.

All equipment listed in this book is approved by Canadian Standards Association.

LIGHTING DESIGN DATA

ROOM INDEX (CONT)

CEILING HEIGHT—FEET												
For Semi-Indirect and Indirect Lighting	9 and 9½	10 to 11½	12 to 13½	14 to 16½	17 to 20	21 to 24	25 to 30	31 to 36	37 to 50			
MOUNTING HEIGHT ABOVE FLOOR—FEET												
For Direct and Semi-Direct Lighting	7 and 7½	8 and 8½	9 and 9½	10 to 11½	12 to 13½	14 to 16½	17 to 20	21 to 24	25 to 30	31 to 36	37 to 50	
Room Width (Feet)	Room Length (Feet)	ROOM INDEX										
36 (34-39)	30-42	B	C	D	E	F	F	H	I	I	J	J
	42-60	B	C	C	D	E	F	G	H	I	J	J
	60-90	A	C	C	C	E	E	F	H	H	J	J
	90-140	A	B	C	C	D	E	F	G	H	I	I
	140-200	A	B	C	C	D	E	F	G	H	I	I
	200-up	A	B	C	C	D	E	F	G	H	I	I
42 (40-45)	42-60	A	B	C	C	E	F	G	H	I	I	J
	60-90	A	B	B	C	D	E	F	G	H	I	J
	90-140	A	B	B	C	D	D	E	F	G	H	J
	140-200	A	A	B	C	D	D	E	F	G	H	I
	200-up	A	A	B	C	D	D	E	F	G	H	I
50 (46-55)	42-60	A	A	B	C	D	E	F	G	H	I	J
	60-90	A	A	B	C	C	D	F	F	G	H	J
	90-140	A	A	A	C	C	D	E	F	F	G	I
	140-200	A	A	A	C	C	D	E	F	F	G	I
	200-up	A	A	A	C	C	D	E	F	F	G	H
60 (56-67)	60-90	A	A	A	B	C	D	E	F	G	H	I
	90-140	A	A	A	B	C	C	D	E	F	G	H
	140-200	A	A	A	B	C	C	D	E	E	F	H
	200-up	A	A	A	B	C	C	D	E	E	F	H

Room Index is the classification of a room according to its proportions; large and small rooms of the same proportion have the same Index. Hence, for

large rooms of dimensions greater than those shown, divide each dimension by the same number and use the Index determined for the smaller room.

COMPUTED ILLUMINATION VALUES FOR FLUORESCENT LAMPS

Footcandles in Service * Based on 70% Maintenance Factor

Area in Square Feet per 40-watt 4500°K White Lamp	UTILIZATION FACTOR														
	.20	.22	.25	.27	.30	.33	.35	.38	.40	.45	.50	.55	.60	.65	.70
5	59	65	74	79	88	97	103	111	118	132	147	162	177	191	206
6	49	54	61	66	74	81	86	93	98	110	123	135	147	159	172
7	42	46	53	57	63	69	74	80	84	95	105	116	126	137	147
8	37	41	46	50	55	61	65	70	74	83	92	101	110	120	129
9	33	36	41	44	49	54	57	62	65	74	82	90	98	106	114
10	29	32	37	40	44	48	52	56	59	66	74	81	88	96	103
12	25	27	31	33	37	40	43	47	49	55	61	67	74	80	86
14	21	23	26	28	32	35	37	40	42	47	53	58	63	68	74
16	18	20	23	25	28	30	32	35	37	41	46	51	55	60	64
18	16	18	20	22	25	27	29	31	33	37	41	45	49	53	57
20	15	16	18	20	22	24	26	28	29	33	37	40	44	48	52
22	13	15	17	18	20	22	23	25	27	30	33	37	40	43	47
24	12	13	15	17	18	20	21	23	25	28	31	34	37	40	43
26	11	12	14	15	17	19	20	21	23	25	28	31	34	37	40
28	10	12	13	14	16	17	18	20	21	24	26	29	32	34	37
30	10	11	12	13	15	16	17	19	20	22	24	27	29	32	34
35	8	9	10	11	13	14	15	16	17	19	21	23	25	27	29
40	7	8	9	10	11	12	13	14	15	17	18	20	22	24	26
45	7	7	8	9	10	11	11	12	13	15	16	18	20	21	23
50	6	6	7	8	9	10	10	11	12	13	15	16	18	19	21
60	5	5	6	7	7	8	9	9	10	11	12	13	15	16	17

*Figures are based on 40 watt 60 cycle 4500°K white lamps rated at 2100 lumens. For 60 cycle 3500°K white lamps multiply values by 1.09. For 60 cycle 6500°K Daylight lamps multiply values by 0.91.

For 85 watt lamps multiply foot-candle values by 1.90 for 4500°K white lamps; by 2.0 for 3500°K white lamps; and by 1.86 for 6500°K Daylight lamps.

For 25 cycle lamps multiply 60 cycle footcandle values by 0.95.

LIGHTING DESIGN DATA

COMPUTED ILLUMINATION VALUES FOR FILAMENT LAMPS*

(Calculated for 120-volt Lamps)

Area per Lamp	Watts per Lamp	UTILIZATION FACTOR																	
		.14	.15	.17	.19	.21	.23	.25	.27	.30	.33	.36	.40	.44	.48	.53	.58	.64	.70
50	100	3	3	4	4	5	5	6	6	7	7	8	9	10	11	12	13	14	16
	200	7	8	9	10	11	12	13	14	16	17	19	21	23	25	28	30	33	36
	300	11	12	14	15	17	18	20	22	24	27	29	32	35	39	43	47	52	56
	500	20	21	24	27	29	32	35	38	42	46	50	56	62	67	74	81	90	98
60	100	3	3	3	4	4	4	5	5	6	6	7	8	8	9	10	11	12	13
	200	6	6	7	8	9	10	11	12	13	14	16	17	19	21	23	25	28	30
	300	9	10	11	13	14	15	17	18	20	22	24	27	30	32	36	39	43	47
	500	16	18	20	22	25	27	29	32	35	38	42	47	51	56	62	68	75	82
70	100	2	3	3	3	3	4	4	4	5	5	6	6	7	8	8	9	10	11
	200	5	6	6	7	8	8	9	10	11	12	13	15	16	18	20	22	24	26
	300	8	9	10	11	12	13	14	16	17	19	21	23	25	28	30	33	37	40
	500	14	15	17	19	21	23	25	27	30	33	36	40	44	48	53	58	64	70
80	100	2	2	2	3	3	3	4	4	4	5	5	6	6	7	7	8	9	10
	200	4	5	6	6	7	7	8	9	10	11	12	13	14	16	17	19	21	23
	300	7	8	9	10	11	12	13	14	15	17	18	20	22	24	27	29	32	35
	500	12	13	15	17	18	20	22	24	26	29	32	35	38	42	46	51	56	61
90	100	2	2	2	2	3	3	3	3	4	4	4	5	6	6	7	7	8	9
	200	4	4	5	6	6	7	7	8	9	10	10	12	13	14	15	17	18	20
	300	6	7	8	8	9	10	11	12	13	15	16	18	20	22	24	26	29	31
	500	11	12	13	15	16	18	19	21	23	26	28	31	34	37	41	45	50	54
100	200	4	4	4	5	5	6	6	7	8	8	9	10	11	12	14	15	17	18
	300	6	6	7	8	8	9	10	11	12	13	14	16	18	19	21	23	26	28
	500	10	10	12	13	15	16	18	19	21	23	25	28	31	34	37	41	45	49
	750	14	15	17	19	21	23	25	27	30	34	36	41	45	49	54	59	65	71
110	200	3	4	4	4	5	5	6	6	7	8	8	9	10	11	12	14	15	16
	300	5	6	6	7	8	8	9	10	11	12	13	15	16	18	19	21	23	26
	500	9	10	11	12	13	15	16	17	19	21	23	26	28	30	34	37	41	44
	750	13	14	16	18	19	21	23	25	28	30	33	37	41	44	49	54	59	65
130	200	3	3	3	4	4	5	5	5	6	7	7	8	9	10	11	12	13	14
	300	4	5	5	6	6	7	8	8	9	10	11	12	14	15	16	18	20	22
	500	8	8	9	10	11	12	14	14	16	18	19	22	24	26	28	31	34	38
	750	11	12	13	15	16	18	20	21	23	26	28	31	34	38	41	45	50	55
150	200	2	3	3	3	4	4	4	5	5	6	6	7	8	8	9	10	11	12
	300	4	4	5	5	6	6	7	7	8	9	10	11	12	13	14	16	17	19
	500	6	7	8	9	10	11	12	13	14	15	17	19	20	22	25	27	30	33
	750	10	10	12	13	14	16	17	18	20	22	24	27	30	32	36	39	43	47
170	200	2	2	3	3	3	4	4	4	5	5	6	6	7	7	8	9	10	11
	300	3	4	4	4	5	5	6	6	7	8	8	10	10	11	12	14	15	17
	500	6	6	7	8	9	10	10	11	12	14	15	16	18	20	22	24	26	29
	750	8	9	10	11	13	14	15	16	18	20	22	24	26	29	32	35	38	42
190	200	2	2	2	3	3	3	3	4	4	4	5	6	6	6	7	8	9	10
	300	3	3	4	4	4	5	5	6	6	7	8	8	9	10	11	12	14	15
	500	5	6	6	7	8	8	9	10	11	12	13	15	16	18	20	21	24	26
	750	8	8	9	10	11	12	13	14	16	18	19	21	24	26	28	31	34	37
210	300	3	3	3	4	4	4	5	5	6	6	7	8	8	9	10	11	12	13
	500	5	5	6	6	7	8	8	9	10	11	12	13	15	16	18	19	21	23
	750	7	7	8	9	10	11	12	13	14	16	17	19	21	23	26	28	31	34
	1000	10	10	12	13	15	16	18	19	21	23	25	28	31	34	37	41	45	49
230	300	2	3	3	3	4	4	4	5	5	6	6	7	8	8	9	10	11	12
	500	4	5	5	6	6	7	8	8	9	10	11	12	13	15	16	18	20	21
	750	6	7	8	8	9	10	11	12	13	15	16	18	19	21	23	26	28	31
	1000	9	10	11	12	13	15	16	17	19	21	23	26	28	31	34	37	41	45
250	500	4	4	5	5	6	6	7	8	8	9	10	11	12	13	15	16	18	20
	750	6	6	7	8	9	9	10	11	12	13	15	16	18	20	22	24	26	28
	1000	8	9	10	11	12	14	15	16	18	19	21	24	26	28	31	34	38	41
	1500	13	14	16	18	19	21	23	25	28	30	33	37	41	44	49	54	59	65
300	500	3	4	4	4	5	5	6	6	7	8	8	9	10	11	12	14	15	16
	750	5	5	6	6	7	8	8	9	10	11	12	14	15	16	18	20	22	24
	1000	7	7	8	9	10	11	12	13	15	16	18	20	22	24	26	28	31	34
	1500	11	12	13	15	16	18	19	21	23	25	28	31	34	37	41	45	49	54
350	750	4	4	5	6	6	7	7	8	9	10	10	12	13	14	15	17	19	20
	1000	6	6	7	8	9	10	10	11	13	14	15	17	18	20	22	24	27	29
	1500	9	10	11	13	14	15	16	18	20	22	24	26	29	32	35	38	42	46
400	750	4	4	4	5	5	6	6	7	8	8	9	10	11	12	13	15	16	18
	1000	5	6	6	7	8	8	9	10	11	12	13	15	16	18	20	21	24	26
	1500	8	9	10	11	12	13	14	16	17	19	21	23	25	28	31	34	37	40

While the above table is designed for finding computed values of illumination using a maintenance factor of 0.70, values of illumination resulting from using other maintenance factors can be calculated by multiplying the footcandle figure taken from the table by the ratio of the maintenance factor to 0.70.

Example: If maintenance factor is 0.65, multiply footcandle figure 0.65 taken from the table by $\frac{0.65}{0.70}$ to arrive at the proper value of illumination.

*For 400 W. H-I Mercury Lamp, values will be about 6% higher than shown for the 750 W. lamp.

LIGHTING DESIGN DATA

LUMEN OUTPUT OF LAMPS

FILAMENT LAMPS

Watts	Lumens†	
	110-120 V.	220-260 V.
60	780 c	470 c*
100	1,520 b	1,100 c
150	2,520 b	1,845 c
200	3,560 b	2,740 c
300	5,730 b†	
300	5,510 c	4,740 c
500	9,750 c	8,400 c
750	15,000 c	13,750 c
1000	21,000 c	18,800 c
1500	32,550 c	28,500 c

LUMEN OUTPUT OF LAMPS (CONT)

MERCURY LAMPS

Watts	Type	Lumens†
100	H4	3,300 c
250	H2	7,000 d
400	H1	16,000 e
1000	H6	65,000 a
3000	T9½	120,000 d

* 50-watt lamp.

† Medium base lamp.

‡ At rated voltage operation.

a 75 hours rated average life.

b 750 hours rated average life.

c 1000 hours rated average life.

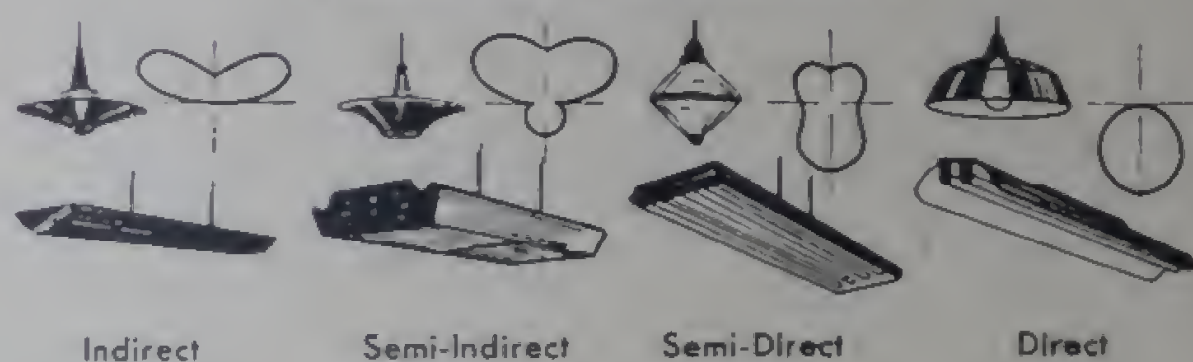
d 2000 hours rated average life.

e 3000 hours rated average life.

FLUORESCENT LAMPS ▲

Lamp Watts	Lumens‡		
	3500°K White	4500°K White	6500°K Daylight
15	615	600	585
20	920	860	800
30	1,470	1,380	1,350
40	2,300	2,100	1,920
85	4,200	4,000	3,900

LUMINAIRE SPACINGS



SLIMLINE LAMPS ▲

Length (Inches)	Lamp Current M.A.	Lamp Watts	Lumens	
			3500°K White	4500°K White
42	120	18	1,080	990
	200	25	1,440	1,320
	300	33	1,770	1,620
64	120	27.5	1,710	1,570
	200	39	2,340	2,150
	300	51	2,830	2,600
72	120	26	1,730	1,590
	200	38	2,450	2,250
	300	51	3,100	2,850
96	120	34	2,300	2,100
	200	51	3,330	3,050
	300	69	4,300	3,950

*Rated average life of Fluorescent and Slimline lamps:

Burning Hours per Start	Average Life (Hours)
3	2500 (85 W. fluorescent—3000)
6	4000
12	6000

Mounting Height of Luminaire †	Indirect — Semi-Indirect			Semi-Direct — Direct	
	Maximum Spacing Between Units	Spacing* from Walls	Length of Suspension	Maximum Spacing‡ Between Units	Spacing* from Walls
8	9	3	1-3	7½	3
9	10½	3	1½-3	9	3
10	12½	3½	2-3	10½	3½
11	13½	3½		12	3½
12	15	4	2½-4	13½	4
13	17	4		15	4
14	19	5	3-4	16½	5
15	20	5		18	5
16	22	6	4-5	20	6
18	24	6		22	6
20 or More	28	7	4-6	25	7

*These spacings apply where desks and benches are next to wall, otherwise one-half the spacing between units is satisfactory.

†Ceiling Height for Indirect and Semi-Indirect Luminaires.

‡The usual spacing is less than the maximum permissible to suit the room or bay arrangement.

LIGHTING DESIGN DATA

Levels of Illumination—Good Current Practice

Area	Footcandles Maintained in Service	Area	Footcandles Maintained in Service	Area	Footcandles Maintained in Service
Airplane Manufacturing		Breweries		Cleaning and pressing industry (cont)	
Stock parts		Brew house...	5	Receiving and shipping...	10
Production.....	50	Boiling, keg washing, and filling	10	Repair and alteration.....	200**
Inspection.....	100**	Bottling.....	20		
Parts manufacturing		Candy making		Cloth products	
Drilling, riveting, and screw fastening.....	30	Box department.....	20	Cutting, inspecting, and sewing	
Spray booths.....	30	Chocolate department		Light goods.....	30
Sheet aluminum layout and template work; shaping and smoothing of small parts for fuselage, wing sections, cowlings, etc.....	50	Husking, winnowing, fat extraction, crushing and refining, feeding.....	10	Medium-dark goods.....	100**
Welding		Bean cleaning; sorting, dipping, packing, and wrapping.....	20	Dark goods.....	200**
General illumination.....	20	Milling.....	50	Pressing, cloth treating (oil cloth, etc.)	
Supplementary illumination..	1,000**	Cream making		Light goods.....	30
Sub-assembly		Mixing, cooking, and molding	20	Medium-dark goods.....	50
Landing gear, fuselage, wing sections, cowlings, and other large units.....	30	Gum drops and jellied forms..	20	Dark goods.....	100**
Final assembly		Hand decorating.....	50		
Placing of motors, propellers, wing sections, and landing gear.....	30	Hard candy		Cool lipples and cleaning plants	
Inspection of assembled ship and its equipment.....	50	Mixing, cooking, and molding	20	Breaking, screening, and cleaning.....	10
Machine tool repairs.....	100**	Die cutting and sorting.....	50	Picking.....	200**
		Kiss making and wrapping.....	50		
Armories		Canning and preserving		Court rooms	20
Drill.....	10	Receiving department.....	20		
Exhibitions.....	30	Preparation department.....	30	Club and lodge rooms	
Art galleries		Container handling.....	20	Lounge and reading rooms....	20
General.....	10	Canning department.....	30	Auditoriums.....	10
On paintings (supplementary illumination).....	50	Processing department.....	20		
Assembly		Storage and warehouse department.....	10	Dairy products	20
Medium.....	20	Chemical works		Dance halls	5
Medium fine.....	50	Hand furnaces, boiling tanks, stationary driers, stationary and cavity crystallizers.....	5		
Fine.....	100**	Mechanical furnaces, generators and stills, mechanical driers, evaporators, filtration, mechanical crystallizers,		Drafting rooms	
Extra fine.....	200**	bleaching.....	10	Prolonged close work, art drafting, and designing in detail..	50
Auditoriums		Tanks for cooking, extractors, percolators, nitrators, electrolytic cells.....	20		
Assembly only.....	10	Churches		Electrical equipment manufacturing	
Exhibitions.....	30	Auditoriums.....	10	Impregnating.....	30
Automobile		Sunday School rooms.....	20	Insulating and coil winding....	100**
Parking spaces.....	2	Pulpit or rostrum (supplementary illumination).....	20	Testing.....	50
Showrooms (see also <i>Show windows</i>).....	50	Art glass windows		Machining (see <i>Machine shops</i>)	
Automobile manufacturing		Light color.....	20	Assembling (see <i>Assembly</i>)	
Assembly line.....	100**	Medium color.....	100**	Inspecting (see <i>Inspection</i>)	
Frame assembly.....	30	Dark color.....	200**		
Body manufacturing		Clay products and cements		Elevators, freight and passenger...	10
Parts.....	30	Grinding, filter presses, kiln rooms.....	5	Engraving	200**
Assembly.....	30	Molding, pressing, cleaning, and trimming.....	20		
Finishing and inspecting....	200**	Color, glazing, and enameling..	30	Explosives	
Bakeries	20	Cleaning and pressing industry		Hand furnaces, boiling tanks, stationary driers, stationary and gravity crystallizers....	5
Banks		Checking and sorting.....	20	Mechanical furnaces; generators and stills; mechanical driers; evaporators; filtration mechanical crystallizers.....	10
Lobby.....	20	Dry and wet cleaning and steaming.....	10	Tanks for cooking, extractors, percolators, nitrators.....	20
Cages and offices.....	50	Inspection and spotting.....	200**		
Barber shops and beauty parlors...	50	Pressing		Farms	
Book binding		Machine.....	30	Milk house.....	10
Folding, assembling, pasting, etc.....	20	Hand.....	50		
Cutting, Punching, and stitching.....	30			Fluid milk	
Embossing.....	30			Boilers.....	10

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LIGHTING DESIGN DATA

Levels of Illumination—Good Current Practice

Area	Footcandles Maintained in Service	Area	Footcandles Maintained in Service	Area	Footcandles Maintained in Service
Fluid milk (cont)		Homes (cont)		Leather working	
Storage refrigerator.....	10	Mirrors		Pressing, winding, and glazing	
Thermometers (on facet)	30	Dressing table, light on		Light.....	30
Vats.....	50	face.....	20	Medium.....	50
Forge shops	10	Bathroom, light on face...	40	Dark.....	100**
Foundries		Game tables		Grading, matching, cutting,	
Charging floor, tumbling, clean-		Card tables.....	10	scarfing, and sewing	
ing, pouring, and shaking out		Ping pong.....	40	Light.....	30
Rough molding and core making	10	Kitchen		Medium.....	100**
Fine molding and core making	20	General illumination.....	10	Dark.....	200**
Glass works		Supplementary illumination		Library	
Mix and furnace rooms, pressing		for work counter, range,		Reading room.....	30
and Lehr, glass-blowing ma-		and sink.....	40	Stack room.....	10
chines.....	10	Laundry		Locker rooms	10
Grinding, cutting glass to size,		Supplementary illumination		Machine shops	
silvering.....	30	for ironer, ironing board,		Rough bench and machine	
Fine grinding and beveling....	50	and tubs.....	40	work.....	20
Etching, decorating, polishing,		Work bench		Medium bench and machine	
and inspecting.....	100**	Supplementary illumination.	40	work, ordinary automatic	
Glove manufacturing		Hospitals		machines, rough grinding,	
Pressing, knitting, sorting		Corridors.....	5	medium buffing and polish-	
Light goods.....	20	Laboratories		ing.....	30
Medium-dark goods.....	50	General laboratory work....	30	Fine bench and machine work,	
Dark goods.....	100**	Close work.....	50	fine automatic machines,	
Cutting, stitching, trimming,		Lobby and reception room....	20	medium grinding, fine buffing	
and inspecting.....		Operating room		and polishing.....	100**
Light goods.....	30	General.....	50	Extra-fine bench and machine	
Medium-dark goods.....	100**	Operating table		work, grinding, fine work...	200**
Dark goods.....	200**	Major operations.....	1,000**	Meat packing	
Hot manufacturing		Minor operations.....	200**	Slaughtering.....	10
Dyeing, stiffening, braiding,		Private rooms and wards (sup-		Cleaning, cutting, cooking,	
cleaning, and refining		plementary illumination)....	30	grinding, canning, packing...	20
Light.....	20	Hotels		Milling—grain foods	
Medium.....	50	Lobby.....	20	Cleaning, grinding, and rolling	10
Dark.....	100**	Dining room.....	5	Baking or roasting.....	20
Forming, sizing, pouncing,		Kitchen.....	20	Flour grading.....	30
flanging, finishing, and iron-		Guest rooms (supplementary		Museums	
ing.....		illumination).....	30	General.....	10
Light.....	30	Corridors.....	10	Special displays (supplement-	
Medium.....	50	Writing rooms (supplementary		ary illumination).....	30
Dark.....	100**	illumination).....	30	Offices	
Sewing		Ice making—engine and compressor		Bookkeeping, typing, and ac-	
Light.....	30	room.....	10	counting.....	50
Medium.....	100**	Inspection		Conference room	
Dark.....	200**	Medium.....	20	General meetings.....	30
Homes		Medium fine.....	50	Stairways.....	10
Dining room, living room, lib-		Fine.....	100**	Desk work	
rary, sun room, entrance hall,		Extra fine.....	200**	Intermittent reading and	
stairways and landings, bed-		Jewelry and watch manufacturing	200**	writing.....	30
rooms and bathrooms		Laundries		Prolonged close work, comput-	
General illumination	5	Washing.....	10	ing, studying, designing,	
Supplementary illumination		Flat work ironing, weighing,		reading blueprints and plans	
as follows:		listing, marking.....	20	Filing and index reference	
Reading, casual periods.....	20	Machine and press finishing,		finding.....	30
Reading, small type, pro-		sorting.....	30	Lobby.....	10
longed periods.....	40	Fine hand ironing.....	50	Mail sorting.....	30
Writing.....	20	Leather manufacturing		Reception rooms.....	10
Children's study tables.....	40	Vats.....	5	Stenographic work	
Sewing		Cleaning, tanning, and stretch-		Prolonged reading of short-	
Average for casual periods	20	ing.....	10	hand notes.....	50
Average for prolonged		Cutting, fleshing, and stuffing..	20	Vault.....	20
periods.....	40	Finishing and scarfing.....	30	Packing and boxing	10
Dark goods and fine needle-				Paint manufacturing	
work.....	100**			General.....	20
				Comparing mix with standard..	100**

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LIGHTING DESIGN DATA

Levels of Illumination—Good Current Practice

Area	Footcandles Maintained in Service	Area	Footcandles Maintained in Service	Area	Footcandles Maintained in Service
Paint shops		Printing plants		Schools (cont)	
Dipping, spraying, firing, rubbing, ordinary hand painting and finishing.....	20	Presses.....	30	Laboratories	
Fine hand painting and finishing	50	Imposing stones [†]	100**	General laboratory work....	30
Extra-fine hand painting and finishing (automobile bodies, piano cases, etc.).....	100**	Proofreading.....	100**	Close work (supplementary illumination).....	50
Paper-box manufacturing		Composing.....	100**	Lecture rooms	
Light.....	20	Professional offices		General.....	30
Dark.....	50	Waiting rooms.....	20	Local illumination.....	50
Storage.....	5	Consultation rooms.....	30	Manual training	
Paper manufacturing		Examination rooms (supplementary illumination).....	100**	General.....	30
Acid towers, beaters, deckers, digester house, knotlers, drying cylinders, calendering, settling tank house, soda room, sulphur room, and pulp grinding.....	10	Dental chairs (supplementary illumination).....	200**	Close work (supplementary illumination).....	50
Bleachers, paper cutters, layboys, trimmers, lappers, Thune press, and wood chipping....	20	Receiving and shipping	10	Sewing room (supplementary illumination).....	50
Hand counting, wet end of paper machine.....	30	Restaurants, lunch rooms, cafeterias		Sight-saving classes.....	50
Paper machine reel, paper inspection, and laboratories....	50	Dining area.....	10	Service space	
Rewinder.....	100**	Food displays.....	50	Stairways.....	10
Storage.....	5	Kitchens.....	20	Elevators, freight and passenger	10
Plating	10	Rubber tire and tube manufacturing		Corridors.....	5
Power plants, engine room, boilers		Stock preparation		Storage (see <i>Storage and stock rooms</i>)	
Boilers, coal and ash handling, storage battery rooms.....	5	Plasticating, milling, and Branbury.....	20	Toilets and wash rooms.....	10
Auxiliary equipment, oil switches, transformers, engines, generators, blowers, compressors.....	20	Calendering.....	30	Shoe manufacturing—leather	
Control room		Fabric preparation—stock cutting and bead building....	30	Cutting and stitching	
Switchboards and meters....	30	Tube and tread tubing machines.....	20	Cutting tables.....	20
Post office		Tire building		Marking, buttonholing, skiving, sorting, vamping and counting	
Lobby.....	20	Solid tires.....	20	Light materials.....	20
Sorting, mailing, etc.....	50	Pneumatic tires.....	50	Dark materials.....	100**
Storage.....	10	Curing department		Stitching	
File room.....	30	Tube and casing.....	50	Light materials.....	30
Corridors and stairways.....	5	Final inspection		Dark materials.....	100**
Printing industries		Tube.....	50	Making and finishing	
Type foundries		Casing.....	100**	Nailers, sole layers, welt beaters and scarfers, trimmers, welters, lasters, edge setters, sluggers, randers, wheelers, treers, cleaning, spraying, buffing, polishing, embossing	
Matrix making, dressing type	100**	Wrapping.....	20	Light.....	20
Font assembly—sorting.....	50	Warehouse.....	5	Dark materials.....	100**
Hand casting.....	30	Rubber goods—mechanical		Storage, packing, and shipping.	10
Machine casting.....	20	Stock preparation		Shoe manufacturing—rubber	
Photography		Plasticating, milling, and Branbury.....	20	Washing, coating, mill run compounding.....	10
Dry plate and film.....	2,000**	Calendering.....	30	Varnishing, vulcanizing, calendering, upper and sole cutting.	30
Wet plate.....	3,000**	Fabric preparation—stock cutting and hose looms.....	30	Sole rolling, lining, making, and finishing processes.....	50
Printing on metal.....	2,000**	Extruded products.....	30	Show windows	
Electrotyping		Molded products and curing....	50	Isolated displays	
Molding, routing, finishing, leveling molds.....	100**	Inspection.....	100**	Dark outlying areas	
Trimming.....	50	Boxing.....	20	General.....	50
Blacking, tinning.....	30	Warehouse.....	5	Feature displays.....	100**
Electroplating, washing, backing.....	20	Sheet metal works		Cities—secondary business districts	
Photoengraving		Miscellaneous machines, medium bench work, punches, presses, shears, stamps, welders, spinning....	30	Small towns	
Etching, staging.....	20	Tin plate and similar inspection [†]	50	General.....	100**
Blocking.....	30	Schools		Feature displays.....	200**
Proofing.....	50	Auditoriums		Cities—main business areas	
Tint laying, routing, finishing	100**	Assembly only.....	10	General.....	200**
		Study halls.....	30	Feature displays.....	500**
		Class and study rooms—desk and chalkboards.....	30	Minimizing daylight reflections.	1,000**
		Drawing room.....	50		
		Gymnasium			
		General exercising.....	20		
		Exhibition games.....	30		

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LIGHTING DESIGN DATA

Levels of Illumination—Good Current Practice

Area	Footcandles Maintained in Service	Area	Footcandles Maintained in Service	Area	Footcandles Maintained in Service
Soap manufacturing		Structural steel fabrication	10	Toilets and wash rooms	10
Kettle houses, cutting, soap chip and powder	10	Sugar refining		Upholstering—automobile, coach, furniture	30
Stamping, wrapping and packing, filling and packing soap powder	20	General	30	Warehouse	5
Stairways	10	Color inspection	100**	Welding	
Steel and iron manufacturing		Testing		General illumination	20
Billet, blooming, sheet bar, skelp, and slabbing mills	10	Rough	20	Supplementary illumination	1,000**
Boiler room, power house, foundry and furnace rooms	10	Fine	30	Woodworking	
Hot sheet and hot strip mills	10	Extra-fine instruments, scales, etc.	100**	Rough sawing and bench work	20
Cold strip, pipe, rail, rod, tube, universal plate, and wire drawing	10	Textile mills		Sizing, planing, rough sanding, medium quality machine and bench work, gluing, veneering, cooperage	30
Merchant and sheared plate mills	20	Cotton textile mills		Fine bench and machine work, fine sanding and finishing	50
Tin plate mills		Opening, mixing, picking, carding, and drawing	10		
Hot strip rolling and tinning machine dept.	10	Slubbing, roving, spinning, and spooling	20		
Cold strip rolling	20	Grading	100**		
Inspection		Warping on comb	30		
Black plate, bloom, and billet chipping	30	Beaming and slashing on comb			
Tin plate and other bright surfaces	50	Gray goods	20		
Repair shops		Denims	100**		
Rough bench and machine work	20	Inspection			
Medium-fine bench and machine work	30	Gray goods (hand turning)	50		
Fine work—buffing, polishing, etc.	100**	Denims (rapidly moving)	200**		
Extra-fine work	200**	Automatic tying-in, weaving	50		
Blacksmith shop	10	Drawing-in by hand	100**		
Laboratories—chemical and physical	30	Silk and rayon textile mills			
Carpenter and pattern shop (see <i>Woodworking</i>)	2	Soaking, fugitive tinting, and conditioning or setting of twist	10		
Storage	2	Winding, twisting, rewinding and coning, quilling, slashing	30		
Stone crushing and screening		Warping (silk or cotton system)			
Belt conveyor tubes, main line shafting spaces, chute rooms, inside of bins, primary breaker room, auxiliary breakers	5	On creel, on running ends, on reel, on beam, on warp at beaming	50		
Under bins	5	Drawing-in			
Screens	10	On heddles and reeds	10		
Storage battery manufacturing		On warp back of harness	20		
Molding of grids	20	On woven cloth	30		
Storage and stock rooms		Woolen and worsted textile mills			
Rough bulky materials	5	Carding, picking, washing, combing, twisting, dyeing	10		
Medium	10	Drawing-in, warping			
Fine material requiring care	20	Light goods	20		
Store interiors		Medium-dark goods	50		
Circulation areas	20	Dark goods	100**		
General merchandising areas	50	Weaving			
Show cases, wall cases, and open counter displays	100**	Light goods	20		
Feature displays	200**	Medium-dark goods	50		
Stock rooms	10	Dark goods	100**		
		Knitting machines	20		
		Theatres and motion picture houses			
		Auditoriums			
		During intermission	5		
		During picture	0 1		
		Foyer	10		
		Lobby	20		
		Tobacco products			
		Drying, stripping, general	10		
		Grading and sorting	100**		

EXTERIOR LIGHTING

Building		General construction	10
Excavation work	2		
Building exteriors and monuments			
Floodlighted			
Bright surroundings			
Light surfaces	10		
Medium dark and dark surfaces	20		
Dark surroundings			
Light surfaces	5		
Medium dark and dark surfaces	10		
Bulletin and poster boards			
Bright surroundings			
Light surfaces	50		
Dark surfaces	100		
Dark surroundings			
Light surfaces	20		
Dark surfaces	50		
Coal yards (protective)	0.2		
Dredging	2		
Flags, floodlighted	30		
Gardens			
Statuary	1		
Flower beds	0.4		
Trees	0.4		
Background	0.2		
Industrial (protective)	0.2		
Authorized entrances	2		
Lumber yards	1		
Prison yards	5		
Quarries	5		
Ship yards			
General	5		
Ways and fabrication areas	10		
Smoke stacks with advertising messages	20		
Storage yards (outdoor)	1		
Water tanks with advertising messages	20		

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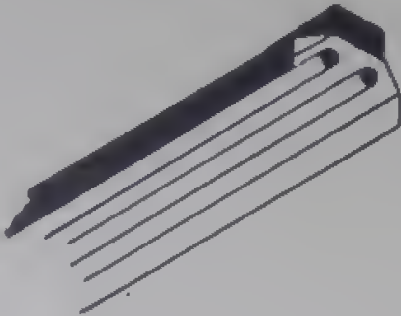
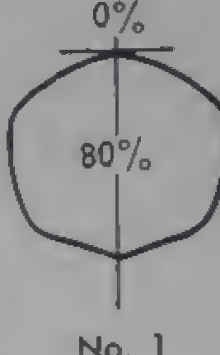
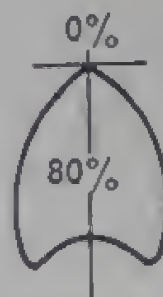
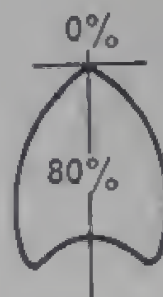
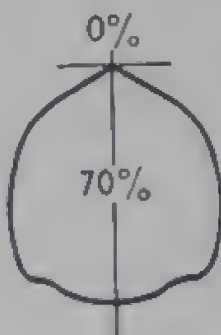
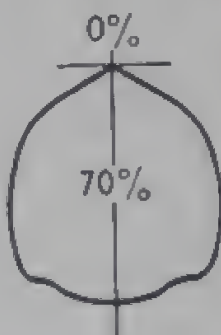
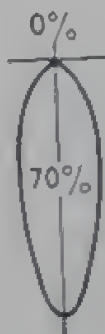
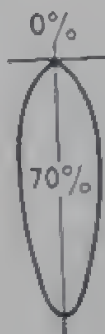
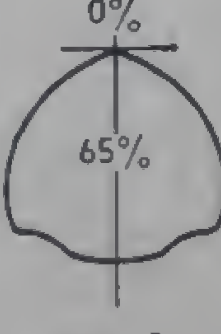
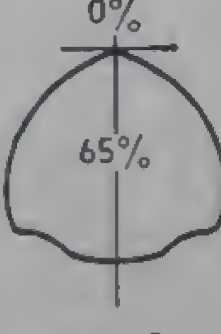
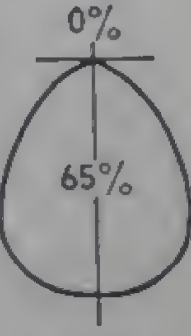
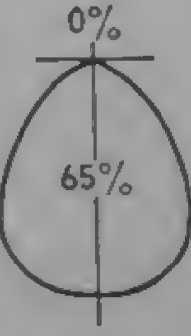
LIGHTING DESIGN DATA

Levels of Illumination—Good Current Practice

Area	Footcandles Maintained in Service	Area	Footcandles Maintained in Service	Area	Footcandles Maintained in Service
SPORTS LIGHTING					
Archery (on the target)		Golf driving		Volley ball	
Tournament	10	General on the tees	10	Tournament	20
Recreational	5	On vertical surface at 200 yards	3	Recreational	10
		Practice putting green	10		
Badminton		Horseshoes		TRANSPORTATION LIGHTING	
Tournament	30	Tournament	10	Depots, terminals, and stations	
Club	20	Recreational	5	Waiting room	20
Recreational	10			Ticket offices	
		Hockey		General	20
Baseball		College or Professional	50	Ticket rack and counters, (supplementary illumina- tion)	50
Major League	150	Amateur League	20	Rest rooms and smoking room	20
AA and AAA League	75	Recreational	10	Baggage checking office	20
A and B League	50			Storage	5
C and D League	30	Playgrounds	5	Concourse	5
Semi-pro and Municipal League	20	Polo	10	Platforms	5
On seats during game	2	Racing		Toilets and washrooms	10
On seats before and after game	5	Bicycle	20	Fire engine houses	10
Basketball		Motor (midget auto or motor- cycle)	20	Garages—automobile	
College and professional	50	Horse	20	Storage	10
High school	30	Dog	20	Repair department and washing	50
Recreational	10	Racquet	30	Used car lot	
Bathing beaches	1			Front row of cars	50
Billiards (on table)		Rifle range		Remainder of area	10
Tournament	50	On target	30	Gasoline service stations	
Recreational	30	Firing point	10	Yard	10
General area	10	Range	5	Pump island and sales room	30
		Rogue		Lube room	
Bowling		Tournament	20	General	20
GENERAL		Recreational	10	Work areas, lube, repair, and washing	50
Tournament	20	Shuffle board		Lavatories	10
Recreational	10	Tournament	10	Hangars—airplane	
Bowling on the green		Recreational	5	Storage	10
Tournament	10	Skating		Repair and maintenance	50
Recreational	5	Rink	5	Highway lighting	
Boxing or wrestling (ring)		Park, lagoon, or pond	1	Highways	0.3
Championship	500	Ski slope practice	0.5	Intersections, circles, clover- leaves	0.4
Professional	200	Soccer		Loading docks	5
Amateur	100	Professional and college	30	Piers	
Seats during bout	2	High school	20	Freight	5
Seats before and after bout	5	Athletic field	10	Passenger	5
Clock golf	10	Skeet shoot		Railroad yards	
Croquet		Target—vertical surface at 100 feet	30	Receiving	0.2
Tournament	10	Firing point, general	10	Classification	0.3
Recreational	5	Squash		Street lighting	
Curling		Tournament	30	Urban streets—vehicular traffic	
Tournament	10	Club	20	Light	0.8
Recreational	5	Recreational	10	Medium	1.0
Drill fields	5	Swimming pools		Heavy	1.2
Gymnasiums		General	10	Vehicles	
Exhibitions and matches	30	Soft Ball		Airplanes	30
General exercising	20	Professional and cham- pionship	50	Auto license plates	0.5
Lockers and shower rooms	10	Semi-pro	30	Interstate buses	30
Handball		Industrial League	20	Railroad cars	
Tournament	30	Recreational	10	Baggage, day coach, dining car, pullman	30
Club	20	Tennis		Mail bag racks and letter cases	30
Recreational	10	Tournament	30	Mail storage	5
Football		Club	20	Street railway, trolley bus, motor bus, and subway cars	30
(Index: Distance from nearest sideline to farthest row of spectators)		Recreational	10		
Class I Over 100 feet	100	Toboggan slides	2		
Class II 50 to 100 feet	50	Trap shoot			
Class III 30 to 50 feet	30	Target—vertical surface at 150 feet	30		
Class IV Under 30 feet	20	Firing point, general	10		
Class V No fixed seating facili- ties	10				

LIGHTING DESIGN DATA

UTILIZATION FACTORS

Luminaire	Distribution	Room Index	Ceiling 75%			Ceiling 50%			Ceiling 30%	
			Walls			Walls			Walls	
			50%	30%	10%	50%	30%	10%	30%	10%
	 No. 1	J	.38	.32	.28	.37	.32	.28	.31	.26
		I	.46	.42	.38	.46	.40	.38	.41	.38
		H	.50	.46	.43	.50	.46	.43	.46	.43
		G	.54	.50	.48	.53	.50	.47	.49	.47
		F	.58	.54	.51	.56	.53	.50	.52	.50
		E	.62	.59	.56	.60	.58	.55	.58	.56
		D	.67	.64	.60	.65	.63	.61	.62	.61
		C	.69	.66	.63	.67	.65	.63	.64	.62
		B	.72	.70	.67	.70	.68	.66	.67	.66
		A	.74	.71	.69	.72	.70	.68	.69	.67
 No. 2	 No. 2	J	.46	.43	.42	.45	.43	.42	.45	.41
		I	.55	.53	.52	.54	.52	.51	.52	.50
		H	.59	.58	.57	.58	.57	.56	.57	.55
		G	.63	.62	.61	.62	.60	.59	.60	.58
		F	.66	.64	.63	.63	.62	.62	.62	.61
		E	.68	.68	.66	.67	.66	.65	.66	.64
		D	.73	.70	.69	.70	.69	.68	.68	.67
		C	.74	.72	.70	.72	.70	.69	.69	.68
		B	.75	.73	.72	.73	.71	.70	.70	.70
		A	.76	.75	.73	.74	.72	.71	.71	.70
 No. 3	 No. 3	J	.33	.28	.25	.32	.28	.25	.27	.25
		I	.41	.36	.34	.40	.36	.33	.36	.33
		H	.45	.41	.38	.43	.41	.38	.40	.38
		G	.48	.45	.42	.47	.44	.41	.43	.41
		F	.50	.48	.45	.49	.46	.44	.46	.44
		E	.55	.52	.49	.54	.51	.49	.50	.49
		D	.59	.56	.53	.57	.55	.53	.55	.53
		C	.60	.58	.55	.59	.57	.55	.56	.55
		B	.63	.61	.59	.62	.60	.58	.59	.57
		A	.64	.62	.60	.63	.61	.60	.60	.59
 No. 4	 No. 4	J	.40	.38	.36	.39	.38	.36	.38	.36
		I	.48	.46	.45	.47	.46	.45	.45	.44
		H	.51	.51	.50	.51	.50	.49	.50	.49
		G	.55	.54	.54	.54	.53	.52	.52	.51
		F	.58	.56	.55	.55	.55	.54	.55	.53
		E	.60	.59	.58	.59	.58	.57	.57	.56
		D	.64	.61	.60	.62	.60	.60	.60	.59
		C	.65	.63	.61	.63	.62	.60	.60	.60
		B	.65	.64	.63	.64	.62	.62	.62	.61
		A	.66	.65	.64	.64	.63	.62	.62	.62
 No. 5	 No. 5	J	.31	.26	.23	.30	.26	.23	.25	.23
		I	.37	.34	.31	.37	.33	.31	.33	.31
		H	.41	.38	.35	.40	.38	.35	.37	.35
		G	.45	.41	.39	.44	.41	.38	.40	.38
		F	.47	.44	.41	.45	.43	.41	.42	.41
		E	.51	.48	.46	.50	.47	.45	.47	.45
		D	.55	.52	.49	.53	.51	.49	.51	.49
		C	.56	.54	.51	.55	.53	.51	.52	.51
		B	.59	.57	.55	.57	.55	.54	.55	.53
		A	.60	.58	.56	.59	.58	.55	.56	.55
 No. 6	 No. 6	J	.36	.33	.32	.35	.33	.32	.34	.31
		I	.43	.41	.40	.42	.40	.40	.40	.38
		H	.46	.45	.45	.45	.44	.44	.44	.43
		G	.50	.48	.48	.49	.47	.46	.47	.46
		F	.52	.51	.49	.50	.49	.48	.49	.48
		E	.55	.54	.52	.54	.53	.51	.52	.50
		D	.58	.56	.55	.57	.55	.54	.55	.54
		C	.59	.58	.55	.58	.56	.55	.55	.55
		B	.60	.59	.58	.59	.58	.57	.57	.56
		A	.61	.60	.59	.60	.59	.58	.58	.57

RLM Types

2-lamp, open or closed end 80%.....	(1)
2-lamp, louvered 65%	(6)
2-lamp, dust tight 65%.....	(5)
2-lamp, horizontal louver 65%	(5)
3-lamp, open or closed end 70%.....	(3)

See
Table

Mercury (H9) Type

Shallow white 80%	(1)
Aluminum (45° Shielding) 65%.....	(6)

See
Table

Low-bay filament units

RLM with I.F. Lamp 80%	(1)
RLM with white bowl lamp 65%	(5)
Dust light 65%	(5)
Silver bowl diffuse reflector 65%	(6)

See
Table

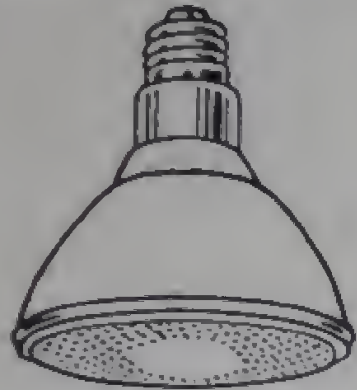
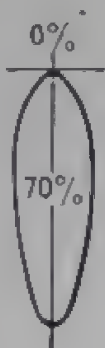
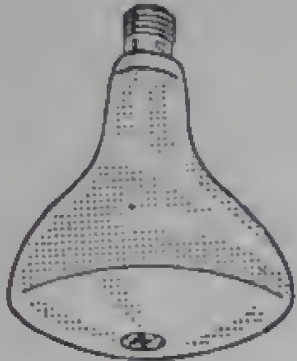
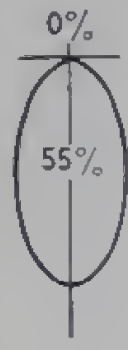

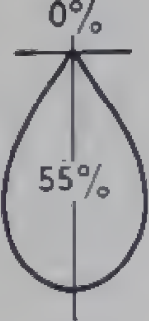
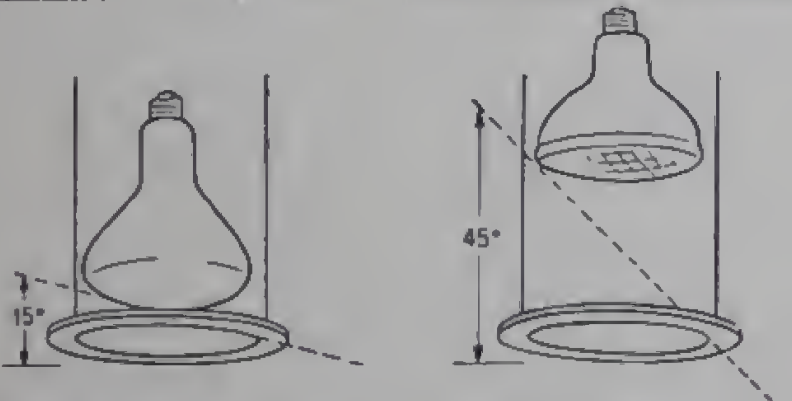
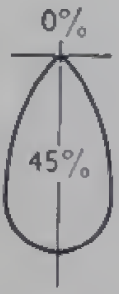
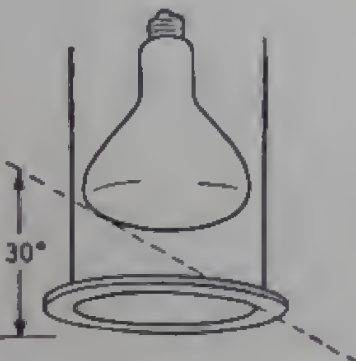
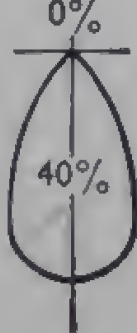
High and Medium bay units

Mirrored or Prismatic Glass, or Aluminum, 80%.....	(2)
Mercury type 70%	(4)
Glass covered 70%	(4)
Deep bowl porcelain enamelled reflector	(3)

See
Table

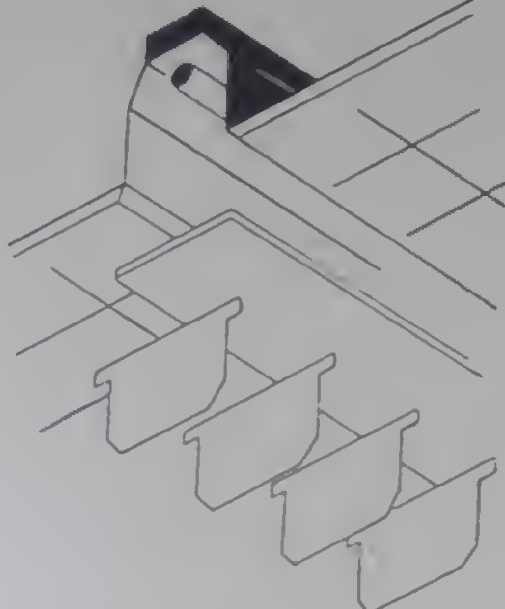
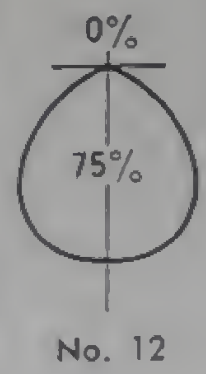
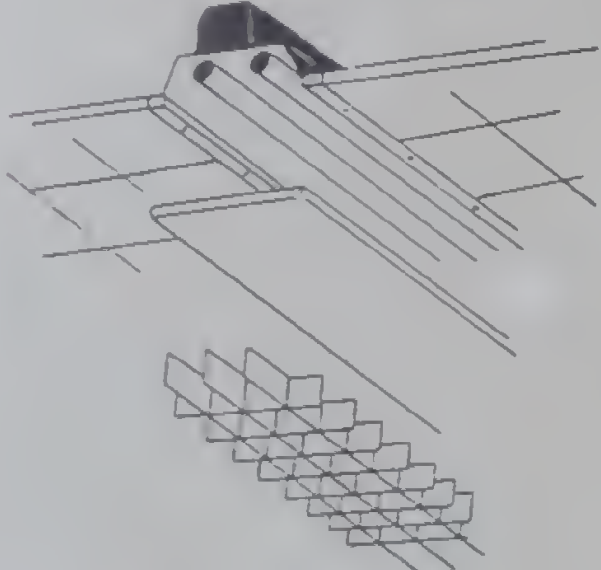
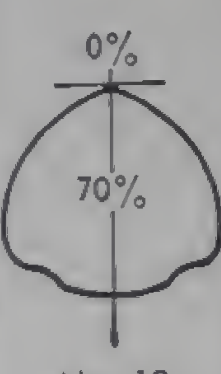
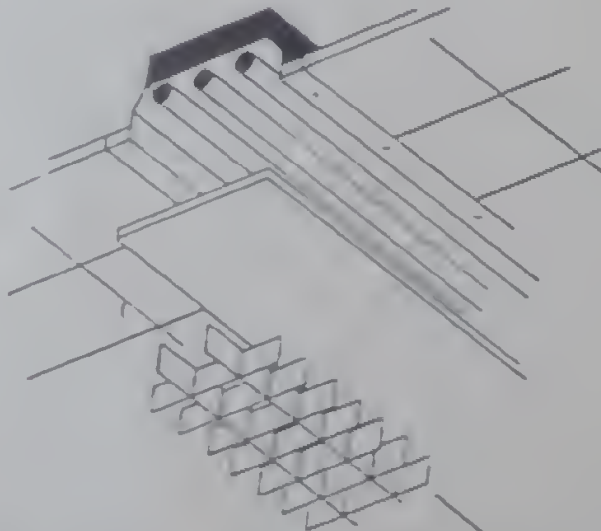
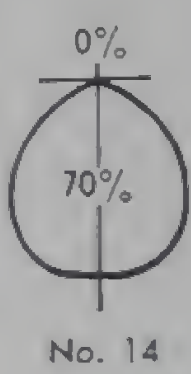
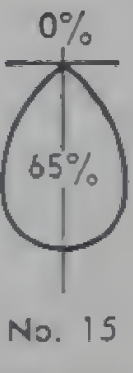
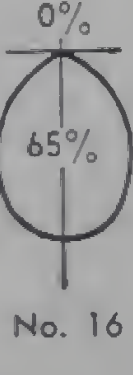
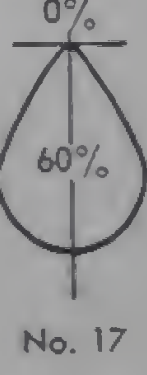
LIGHTING DESIGN DATA

UTILIZATION FACTORS

Luminaire	Distribution	Room Index	Ceiling 75%			Ceiling 50%			Ceiling 30%	
			Walls			Walls			Walls	
			50%	30%	10%	50%	30%	10%	30%	10%
 Projector Flood Lamp No. 7 Flush or Surface Mounted MF .75		J	.40	.38	.36	.39	.38	.36	.39	.36
		I	.48	.46	.45	.47	.45	.45	.45	.43
		H	.51	.51	.50	.50	.50	.49	.50	.48
		G	.55	.54	.53	.54	.52	.52	.52	.51
		F	.58	.56	.55	.55	.55	.54	.55	.53
		E	.60	.59	.58	.59	.58	.57	.57	.56
		D	.64	.61	.60	.62	.60	.60	.60	.59
		C	.65	.63	.61	.63	.62	.60	.61	.60
		B	.65	.64	.63	.64	.62	.61	.62	.61
		A	.66	.65	.64	.65	.63	.62	.62	.62
 Reflector Flood Lamp No. 8 Unshielded MF. 85		J	.34	.32	.31	.34	.32	.31	.34	.31
		I	.41	.40	.39	.40	.39	.38	.39	.37
		H	.44	.43	.43	.43	.43	.42	.43	.41
		G	.47	.47	.46	.46	.45	.44	.45	.44
		F	.49	.48	.47	.47	.47	.46	.47	.46
		E	.52	.51	.50	.50	.50	.49	.49	.48
		D	.55	.52	.52	.53	.52	.51	.51	.50
		C	.56	.54	.53	.54	.53	.52	.52	.51
		B	.56	.55	.54	.55	.53	.53	.53	.52
		A	.57	.56	.55	.55	.54	.54	.53	.53
 Deep Prismatic Louvered No. 9 MF .70		J	.32	.30	.29	.31	.30	.29	.31	.28
		I	.38	.36	.36	.37	.36	.35	.36	.34
		H	.40	.40	.39	.40	.39	.38	.39	.38
		G	.43	.43	.42	.42	.41	.41	.41	.40
		F	.45	.44	.43	.43	.43	.42	.43	.42
		E	.47	.46	.46	.46	.46	.45	.46	.44
		D	.50	.48	.47	.48	.47	.47	.47	.46
		C	.51	.49	.48	.49	.48	.47	.47	.47
		B	.51	.50	.49	.50	.49	.48	.48	.48
		A	.52	.51	.50	.51	.50	.49	.49	.48
 Reflector Flood Lamp 15° Shielding Projector Lamp 45° Shielding No. 10 MF .85 MF .75		J	.29	.27	.26	.28	.27	.26	.28	.25
		I	.34	.33	.32	.33	.32	.32	.32	.31
		H	.36	.36	.36	.36	.35	.35	.35	.34
		G	.39	.38	.38	.38	.37	.37	.37	.36
		F	.41	.40	.39	.39	.39	.38	.39	.38
		E	.42	.42	.42	.42	.41	.40	.41	.40
		D	.45	.43	.43	.44	.43	.42	.42	.42
		C	.46	.45	.44	.45	.44	.43	.43	.42
		B	.47	.45	.45	.45	.45	.44	.44	.43
		A	.47	.46	.46	.46	.45	.45	.45	.44
 Reflector Spot Lamp 30° Shielding No. 11 MF .85		J	.23	.22	.21	.22	.22	.21	.22	.20
		I	.27	.26	.26	.27	.26	.25	.26	.25
		H	.29	.29	.29	.29	.28	.28	.28	.27
		G	.31	.31	.31	.31	.30	.30	.30	.29
		F	.33	.32	.31	.31	.31	.31	.31	.30
		E	.34	.34	.33	.34	.33	.32	.32	.32
		D	.36	.35	.34	.35	.34	.34	.34	.34
		C	.37	.36	.35	.36	.35	.34	.34	.34
		B	.37	.36	.36	.36	.36	.35	.35	.35
		A	.38	.37	.37	.37	.36	.36	.36	.35

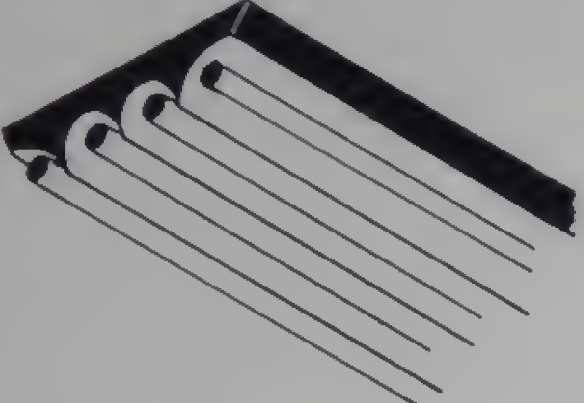
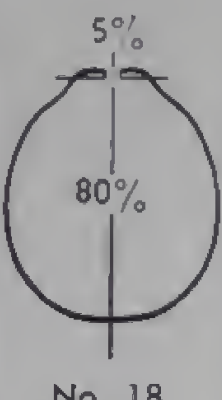
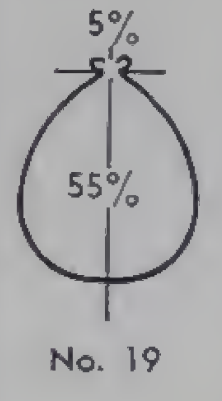
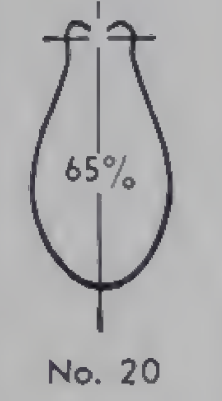
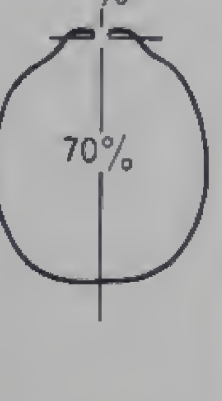
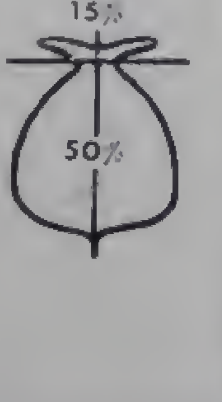

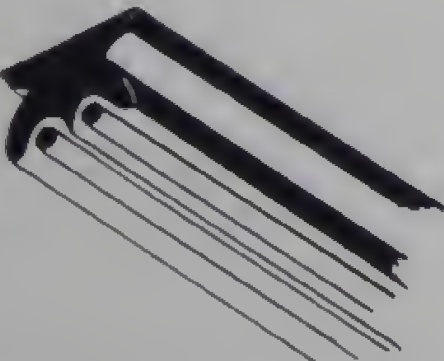
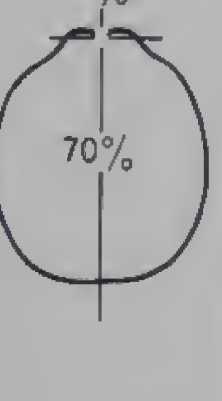
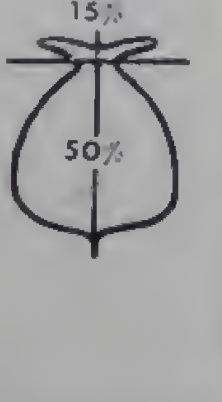


LIGHTING DESIGN DATA

UTILIZATION FACTORS

Luminaire	Distribution	Room Index	Ceiling 75%			Ceiling 50%			Ceiling 30%	
			Walls			Walls			Walls	
			50%	30%	10%	50%	30%	10%	30%	10%
 <p>Single lamp deep troffer</p> <p>White, no baffles, 70% (14)</p> <p>White with baffles 65% (15)</p> <p>White with prismatic cover plate 60% (17)</p> <p>Semi-specular or semi-diffused aluminum, open 65% (15)</p> <p>Semi-specular or semi-diffused aluminum baffles 60% (17)</p>	 <p>No. 12</p>	J	.36	.30	.26	.35	.30	.26	.29	.24
		I	.43	.39	.36	.43	.37	.36	.38	.36
		H	.47	.43	.40	.47	.43	.40	.43	.40
		G	.51	.47	.45	.50	.47	.44	.46	.44
		F	.54	.51	.48	.52	.50	.47	.49	.47
		E	.58	.55	.52	.56	.54	.52	.54	.52
		D	.63	.60	.56	.61	.59	.57	.58	.57
		C	.65	.62	.59	.63	.61	.59	.60	.58
		B	.67	.66	.63	.66	.64	.62	.63	.62
		A	.69	.67	.65	.67	.66	.64	.65	.63
 <p>Two lamp shallow troffer</p> <p>White, open 75% (12)</p> <p>White, with prismatic or diffusing glass 65% (15)</p> <p>White, with louvers 60% (17)</p> <p>Aluminum with louvers 55% (17)</p>	 <p>No. 13</p>	J	.33	.28	.25	.32	.28	.25	.27	.25
		I	.41	.36	.34	.40	.36	.33	.36	.33
		H	.45	.41	.38	.43	.41	.38	.40	.38
		G	.48	.45	.42	.47	.44	.41	.43	.41
		F	.50	.48	.45	.49	.46	.44	.46	.44
		E	.55	.52	.49	.54	.51	.49	.50	.49
		D	.59	.56	.53	.57	.55	.53	.55	.53
		C	.60	.58	.55	.59	.57	.55	.56	.55
		B	.63	.61	.59	.62	.60	.58	.59	.57
		A	.64	.62	.60	.63	.61	.60	.60	.59
 <p>Three lamp shallow white troffer</p> <p>Open 70% (13)</p> <p>With, louvers 55% (17)</p> <p>With prismatic cover plate 60% (17)</p>	 <p>No. 14</p>	J	.37	.35	.34	.36	.35	.34	.36	.33
		I	.44	.43	.42	.44	.42	.42	.42	.40
		H	.48	.47	.46	.47	.46	.45	.46	.45
		G	.51	.50	.50	.50	.49	.48	.49	.47
		F	.54	.52	.51	.51	.51	.50	.51	.49
		E	.56	.55	.54	.55	.54	.53	.53	.52
		D	.59	.57	.56	.57	.56	.55	.55	.55
		C	.60	.58	.57	.58	.57	.56	.56	.55
		B	.61	.59	.58	.59	.58	.57	.57	.56
		A	.61	.60	.59	.60	.59	.58	.58	.57
	 <p>No. 15</p>	J	.33	.29	.26	.32	.29	.26	.28	.26
		I	.40	.36	.35	.39	.36	.34	.36	.34
		H	.43	.41	.39	.42	.40	.38	.40	.38
		G	.46	.44	.42	.45	.44	.42	.42	.42
		F	.49	.46	.44	.47	.45	.44	.45	.44
		E	.52	.50	.48	.51	.49	.47	.49	.47
		D	.56	.53	.51	.55	.53	.51	.52	.51
		C	.57	.55	.53	.56	.54	.53	.53	.52
		B	.59	.57	.56	.58	.56	.55	.55	.55
		A	.60	.58	.57	.59	.57	.56	.57	.55
	 <p>No. 16</p>	J	.32	.29	.29	.31	.29	.27	.29	.26
		I	.38	.36	.35	.38	.35	.34	.35	.34
		H	.42	.40	.39	.41	.39	.38	.39	.38
		G	.45	.43	.42	.44	.42	.41	.41	.41
		F	.47	.45	.43	.45	.44	.43	.44	.43
		E	.49	.48	.46	.49	.47	.46	.47	.46
		D	.53	.50	.49	.52	.50	.49	.49	.49
		C	.54	.52	.50	.53	.51	.50	.50	.49
		B	.55	.54	.53	.54	.52	.52	.52	.51
		A	.57	.55	.54	.55	.53	.52	.53	.52
	 <p>No. 17</p>	J	.30	.28	.27	.30	.28	.27	.29	.26
		I	.37	.35	.34	.36	.34	.34	.34	.32
		H	.39	.38	.38	.39	.37	.37	.38	.36
		G	.42	.41	.40	.41	.40	.39	.40	.39
		F	.44	.43	.42	.42	.42	.41	.42	.41
		E	.46	.46	.44	.46	.45	.43	.44	.43
		D	.50	.47	.46	.48	.47	.46	.46	.46
		C	.50	.49	.47	.49	.48	.47	.47	.46
		B	.51	.50	.49	.50	.48	.48	.48	.47
		A	.52	.51	.50	.51	.49	.48	.49	.48

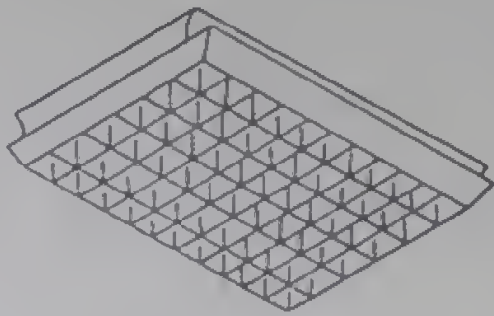

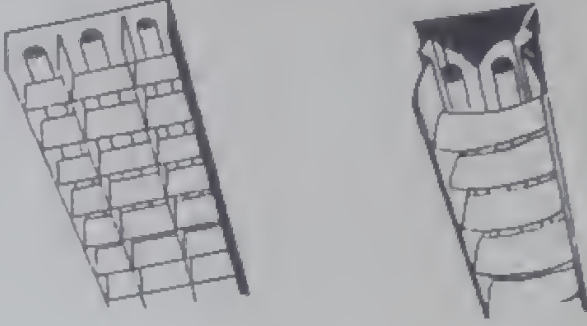
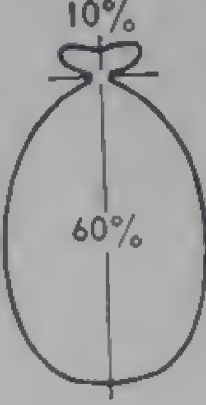
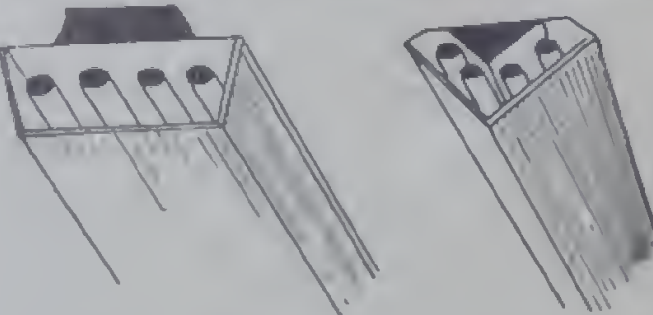
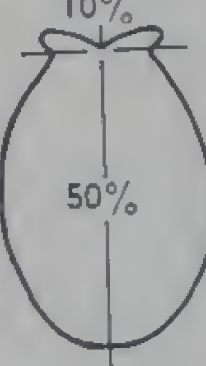

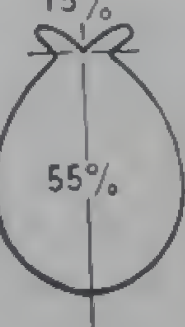
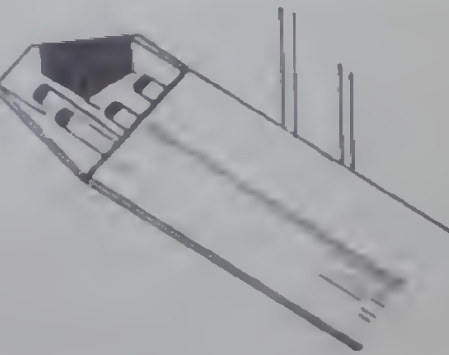
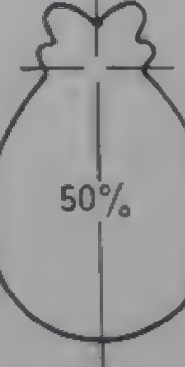
LIGHTING DESIGN DATA

UTILIZATION FACTORS

Luminaire	Distribution	Room Index	Ceiling 75%			Ceiling 50%			Ceiling 30%	
			Walls			Walls			Walls	
			50%	30%	10%	50%	30%	10%	30%	10%
 <p>PAN TYPE UNITS</p> <p>Open 85%..... (18)</p> <p>Louvered Grid 75%..... (20)</p> <p>Deep open with luminous metal sides 60% (19)</p>	 <p>No. 18</p>	J	.37	.32	.29	.37	.32	.29	.31	.29
		I	.46	.41	.38	.45	.40	.38	.40	.38
		H	.50	.46	.44	.49	.46	.43	.45	.43
	 <p>No. 19</p>	G	.55	.51	.47	.53	.50	.47	.48	.47
		F	.59	.54	.51	.56	.53	.50	.52	.50
		E	.63	.60	.56	.61	.58	.55	.57	.54
	 <p>No. 20</p>	D	.68	.63	.60	.65	.62	.60	.61	.59
		C	.70	.66	.62	.67	.64	.61	.63	.61
		B	.73	.69	.66	.70	.67	.65	.66	.64
	 <p>No. 21</p>	A	.75	.71	.69	.72	.69	.67	.68	.66
		J	.31	.28	.27	.29	.28	.27	.28	.26
		I	.37	.35	.34	.36	.34	.34	.34	.32
	 <p>No. 22</p>	H	.46	.39	.38	.39	.38	.37	.37	.36
		G	.43	.42	.41	.42	.40	.39	.40	.39
		F	.46	.44	.42	.44	.42	.41	.42	.41
	 <p>No. 23</p>	E	.48	.47	.45	.47	.45	.44	.44	.43
		D	.51	.49	.47	.49	.48	.46	.46	.46
		C	.52	.51	.48	.50	.49	.48	.47	.46
	<p>No. 24</p>	B	.54	.52	.51	.52	.50	.49	.48	.48
		A	.55	.54	.51	.52	.51	.50	.49	.48
 <p>Shielded "V" Type Unit 75%</p> <p>No. 21 MF .70</p>	 <p>No. 25</p>	J	.36	.33	.31	.35	.32	.30	.32	.31
		I	.43	.40	.39	.42	.39	.38	.38	.37
		H	.47	.45	.43	.45	.43	.42	.43	.41
	 <p>No. 26</p>	G	.50	.48	.48	.49	.47	.45	.45	.44
		F	.53	.51	.49	.50	.49	.47	.48	.47
		E	.57	.55	.53	.55	.53	.51	.51	.50
	 <p>No. 27</p>	D	.61	.58	.56	.58	.56	.53	.54	.53
		C	.63	.60	.57	.59	.57	.55	.55	.54
		B	.64	.62	.60	.61	.59	.58	.57	.56
 <p>Prismatic Lens Type 4 Lamp</p> <p>No. 22 MF .70</p>	<p>No. 28</p>	A	.66	.63	.61	.62	.60	.59	.58	.57
		J	.34	.29	.28	.33	.29	.27	.29	.26
		I	.41	.37	.35	.40	.37	.34	.37	.34
	<p>No. 29</p>	H	.45	.42	.40	.44	.41	.39	.41	.38
		G	.49	.45	.43	.47	.44	.42	.41	.42
		F	.52	.49	.45	.49	.47	.45	.47	.44
	<p>No. 30</p>	E	.56	.53	.49	.54	.51	.49	.50	.48
		D	.60	.56	.53	.58	.55	.52	.54	.52
		C	.62	.58	.54	.60	.56	.54	.55	.53
	<p>No. 31</p>	B	.65	.61	.58	.61	.58	.57	.56	.56
		A	.66	.62	.60	.63	.60	.58	.59	.57
	<p>No. 32</p>	J	.28	.25	.23	.27	.25	.23	.24	.22
		I	.35	.32	.30	.32	.30	.29	.28	.27
		H	.37	.35	.35	.36	.34	.32	.31	.29
	<p>No. 33</p>	G	.40	.38	.37	.39	.36	.35	.33	.32
		F	.43	.40	.39	.41	.39	.36	.35	.34
		E	.46	.44	.42	.43	.41	.40	.38	.36
	<p>No. 34</p>	D	.49	.47	.44	.46	.44	.42	.40	.39
		C	.50	.48	.46	.47	.45	.44	.41	.40
		B	.52	.49	.48	.49	.47	.45	.43	.42
	<p>No. 35</p>	A	.53	.51	.49	.50	.48	.47	.45	.43

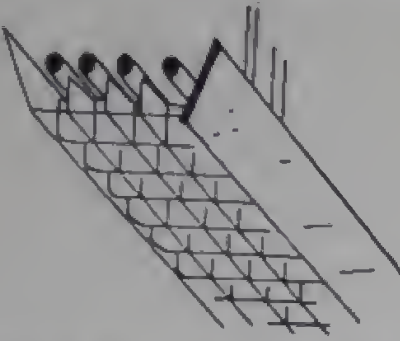
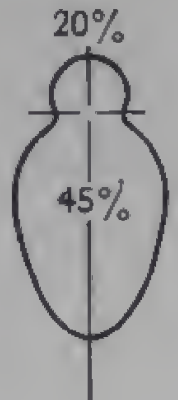

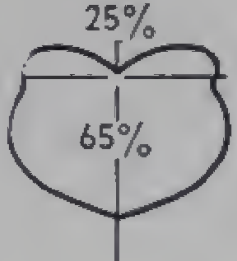

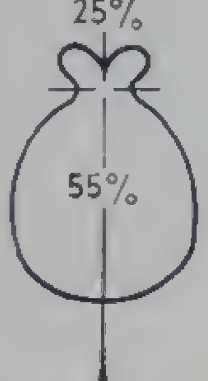

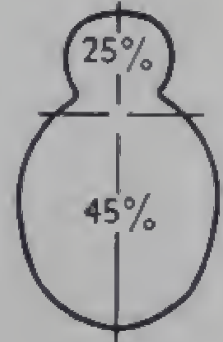
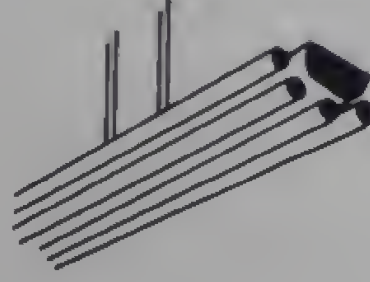
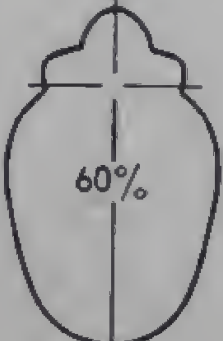
LIGHTING DESIGN DATA

UTILIZATION FACTORS

Luminaire	Distribution	Room Index	Ceiling 75%			Ceiling 50%			Ceiling 30%	
			Walls			Walls			Walls	
			50%	30%	10%	50%	30%	10%	30%	10%
 45° Louverall No. 23 MF .70		J	.23	.22	.20	.23	.22	.20	.21	.20
		I	.28	.26	.26	.27	.26	.26	.26	.25
		H	.30	.29	.28	.29	.28	.28	.28	.27
		G	.32	.31	.31	.31	.31	.30	.30	.30
		F	.33	.32	.32	.32	.32	.31	.32	.31
		E	.35	.34	.33	.34	.33	.33	.33	.32
		D	.37	.36	.35	.36	.35	.34	.35	.34
		C	.38	.37	.36	.37	.36	.35	.35	.35
		B	.38	.37	.37	.37	.37	.36	.36	.36
		A	.39	.38	.38	.38	.37	.37	.37	.36
 Shallow Louvered Opaque Sides Ceiling Mounted Troffer No. 24 MF .70		J	.34	.30	.28	.32	.30	.28	.29	.27
		I	.41	.38	.37	.39	.37	.35	.36	.34
		H	.44	.42	.41	.43	.40	.39	.40	.38
		G	.48	.46	.44	.46	.44	.42	.42	.42
		F	.50	.49	.46	.48	.46	.44	.45	.44
		E	.53	.52	.50	.51	.50	.47	.48	.47
		D	.56	.54	.53	.55	.52	.51	.51	.50
		C	.59	.57	.54	.56	.54	.52	.52	.51
		B	.60	.58	.57	.57	.56	.55	.54	.53
		A	.62	.60	.59	.59	.57	.56	.56	.54
 Ceiling Mounted Box Type with ribbed Glass Panels Ceiling Mounted Wedge Type No. 25 MF .75		J	.25	.22	.20	.24	.21	.20	.21	.19
		I	.30	.28	.26	.28	.27	.25	.26	.25
		H	.34	.31	.27	.32	.30	.28	.29	.28
		G	.37	.34	.32	.35	.33	.31	.32	.30
		F	.39	.37	.34	.37	.35	.33	.34	.32
		E	.42	.40	.37	.40	.38	.36	.37	.35
		D	.45	.42	.40	.43	.40	.39	.39	.38
		C	.47	.44	.41	.44	.42	.40	.40	.39
		B	.49	.46	.44	.46	.44	.42	.42	.41
		A	.50	.48	.45	.48	.45	.43	.43	.42
 Surface Troffer with Louvers No. 26 MF .70		J	.30	.26	.24	.28	.25	.23	.25	.22
		I	.36	.33	.31	.35	.31	.30	.31	.29
		H	.40	.37	.35	.38	.35	.33	.34	.32
		G	.43	.40	.37	.41	.38	.36	.36	.35
		F	.46	.43	.40	.43	.40	.38	.39	.37
		E	.49	.47	.44	.46	.44	.42	.42	.40
		D	.53	.49	.47	.50	.47	.45	.45	.44
		C	.55	.52	.49	.51	.49	.47	.45	.45
		B	.57	.54	.52	.53	.51	.49	.48	.47
		A	.59	.56	.54	.55	.52	.50	.50	.48
 Suspended Wedge Type No. 27 MF .70		J	.25	.21	.18	.23	.19	.17	.19	.17
		I	.31	.26	.24	.29	.25	.23	.24	.23
		H	.34	.30	.28	.32	.29	.26	.28	.25
		G	.38	.34	.31	.35	.32	.29	.30	.28
		F	.40	.37	.33	.37	.34	.31	.32	.30
		E	.44	.41	.37	.41	.38	.35	.36	.34
		D	.47	.44	.40	.44	.41	.39	.39	.37
		C	.50	.46	.43	.46	.43	.40	.40	.38
		B	.53	.50	.47	.48	.45	.44	.43	.41
		A	.55	.51	.48	.50	.47	.45	.44	.43

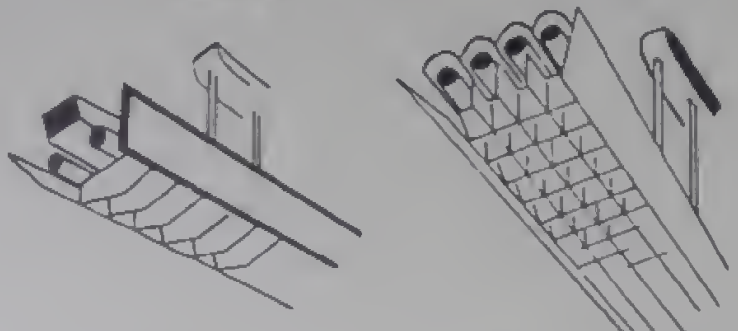
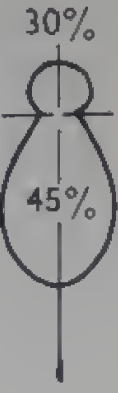
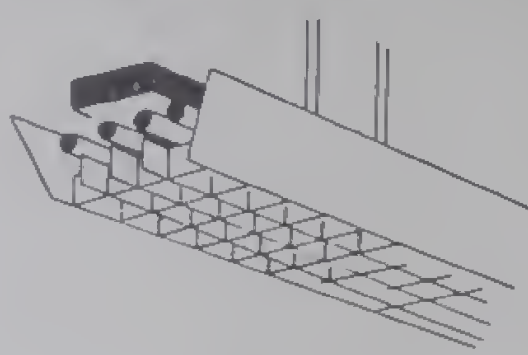
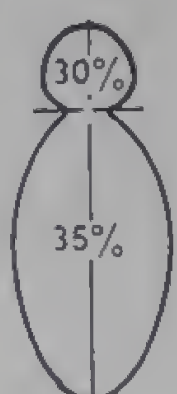
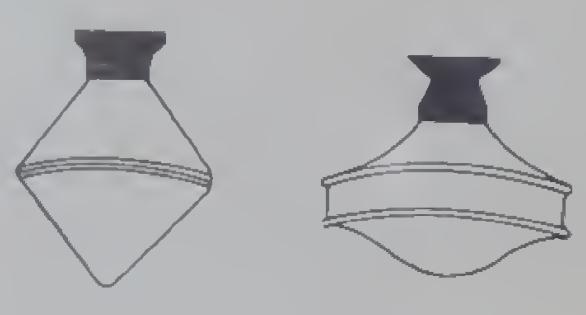
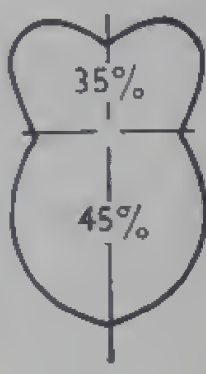
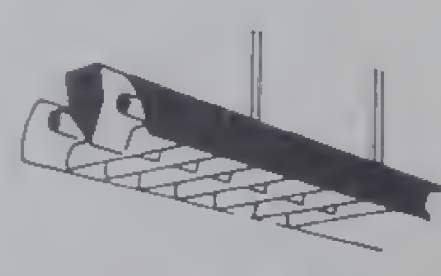
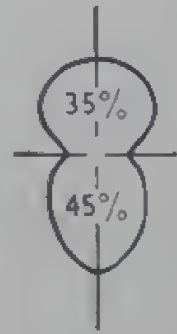
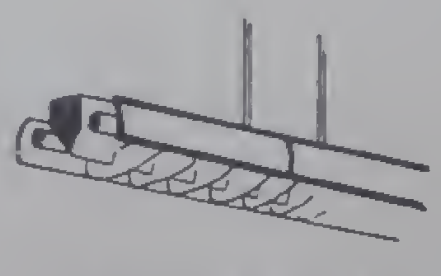
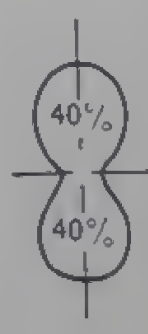
LIGHTING DESIGN DATA

UTILIZATION FACTORS

Luminaire	Distribution	Room Index	Ceiling 75%			Ceiling 50%			Ceiling 30%	
			Walls			Walls			Walls	
			50%	30%	10%	50%	30%	10%	30%	10%
 Suspended Louvered-bottom Box Type No. 28 MF .70		J	.23	.20	.18	.22	.19	.17	.18	.17
		I	.29	.26	.24	.27	.24	.22	.23	.21
		H	.32	.29	.27	.30	.27	.26	.26	.24
		G	.36	.33	.30	.33	.30	.28	.28	.27
		F	.38	.35	.32	.35	.32	.30	.30	.29
		E	.41	.38	.35	.38	.36	.33	.33	.31
		D	.43	.41	.38	.41	.38	.36	.36	.34
		C	.47	.43	.40	.43	.39	.37	.37	.35
		B	.49	.46	.44	.45	.42	.40	.39	.37
		A	.51	.48	.45	.46	.43	.42	.40	.39
 Bare Lamp Channel No. 29 MF .75		J	.28	.22	.18	.26	.21	.18	.20	.17
		I	.35	.29	.25	.33	.27	.24	.26	.24
		H	.39	.33	.30	.37	.32	.28	.30	.27
		G	.44	.38	.33	.40	.36	.32	.33	.30
		F	.47	.42	.37	.43	.39	.34	.37	.33
		E	.53	.47	.42	.49	.44	.40	.41	.38
		D	.57	.51	.46	.53	.48	.44	.45	.42
		C	.60	.55	.49	.55	.50	.46	.48	.44
		B	.66	.60	.55	.59	.54	.51	.51	.49
		A	.68	.63	.58	.62	.57	.54	.53	.51
 Prismatic or open Louvered Glass or Plastic No. 30 MF .70		J	.33	.32	.28	.31	.28	.26	.28	.25
		I	.40	.37	.35	.38	.35	.33	.33	.31
		H	.44	.41	.39	.41	.39	.37	.37	.35
		G	.47	.45	.43	.44	.41	.40	.40	.38
		F	.51	.48	.45	.46	.44	.42	.42	.40
		E	.54	.51	.49	.50	.48	.45	.45	.43
		D	.50	.54	.51	.53	.50	.48	.48	.46
		C	.60	.57	.53	.55	.52	.49	.48	.47
		B	.62	.59	.57	.57	.54	.53	.51	.49
		A	.64	.61	.58	.59	.56	.54	.52	.51
 Half Cylinder Shielded No. 31 MF .65		J	.24	.20	.18	.22	.19	.17	.18	.16
		I	.29	.26	.23	.27	.24	.22	.23	.20
		H	.33	.29	.26	.30	.27	.25	.25	.23
		G	.36	.33	.29	.33	.30	.28	.28	.26
		F	.39	.35	.32	.35	.32	.29	.30	.28
		E	.42	.39	.36	.38	.36	.33	.33	.31
		D	.46	.42	.39	.41	.38	.36	.35	.34
		C	.48	.44	.42	.43	.40	.38	.37	.35
		B	.51	.48	.45	.46	.42	.41	.39	.38
		A	.53	.50	.47	.48	.44	.42	.41	.39
 Half Cylinder Bare No. 32 MF .70		J	.29	.24	.21	.28	.23	.20	.21	.19
		I	.37	.31	.28	.34	.29	.26	.28	.25
		H	.41	.36	.33	.33	.34	.31	.32	.29
		G	.46	.40	.36	.41	.37	.34	.34	.32
		F	.49	.44	.39	.44	.40	.37	.38	.35
		E	.54	.49	.45	.49	.45	.41	.42	.39
		D	.59	.53	.49	.53	.49	.46	.46	.43
		C	.61	.56	.52	.54	.51	.48	.48	.45
		B	.66	.61	.57	.59	.55	.53	.51	.49
		A	.68	.64	.60	.61	.57	.55	.53	.51

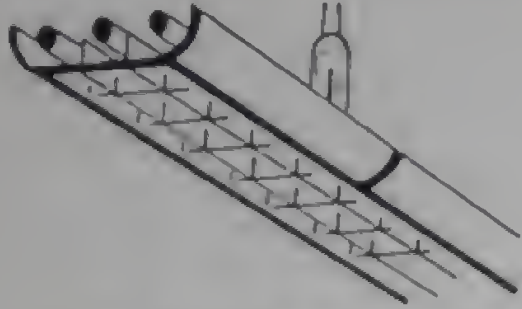
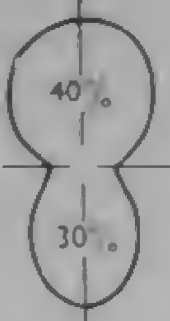
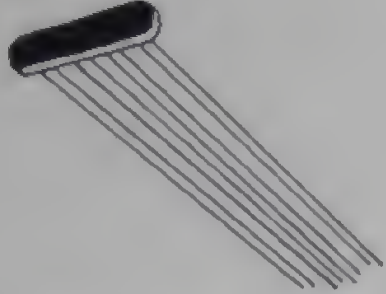
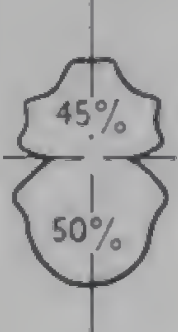
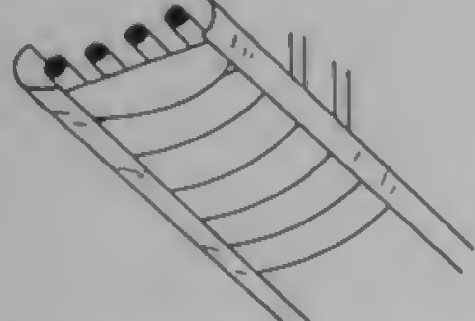
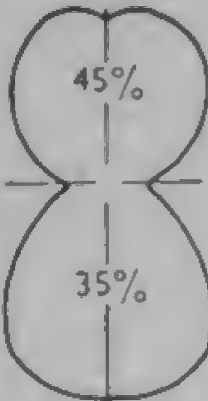

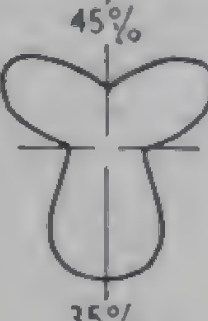

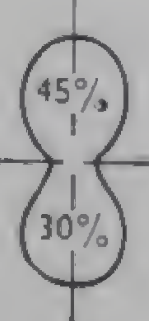
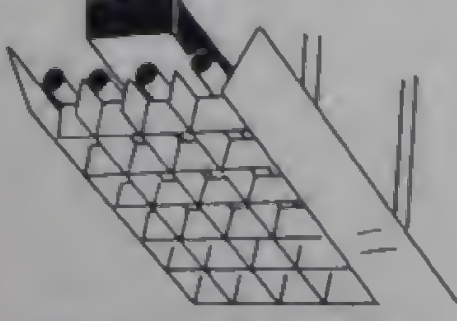
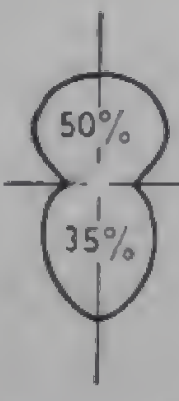
LIGHTING DESIGN DATA

UTILIZATION FACTORS

Luminaire	Distribution	Room Index	Ceiling 75%			Ceiling 50%			Ceiling 30%	
			Walls			Walls			Walls	
			50%	30%	10%	50%	30%	10%	30%	10%
 <p>"V" Shaped Aluminum Center Louver Glass Sides Louvered Bottom Top Reflectors MF .70</p>		J	.29	.26	.24	.26	.24	.23	.24	.21
		I	.35	.32	.30	.32	.30	.28	.28	.26
		H	.39	.36	.34	.35	.33	.32	.31	.29
		G	.42	.40	.37	.38	.36	.34	.33	.32
		F	.45	.42	.39	.40	.38	.36	.35	.34
		E	.48	.45	.43	.43	.41	.39	.38	.36
		D	.52	.48	.46	.46	.44	.42	.40	.39
		C	.53	.50	.48	.48	.45	.43	.41	.40
		B	.56	.53	.51	.50	.47	.46	.43	.42
		A	.57	.55	.53	.51	.49	.47	.44	.43
 <p>Box Type Glass Sides Louvered Bottom MF .70</p>		J	.24	.21	.20	.22	.20	.19	.19	.17
		I	.29	.27	.25	.26	.24	.23	.23	.21
		H	.32	.30	.28	.29	.27	.26	.25	.24
		G	.35	.33	.31	.31	.29	.28	.27	.26
		F	.37	.34	.32	.33	.31	.30	.28	.27
		E	.40	.38	.36	.35	.34	.32	.30	.29
		D	.43	.40	.38	.37	.36	.34	.32	.31
		C	.44	.42	.40	.39	.37	.35	.33	.32
		B	.47	.44	.42	.40	.39	.38	.34	.34
		A	.48	.46	.44	.42	.40	.39	.35	.34
 <p>Glass Enclosing Globes MF .70</p>		J	.23	.19	.16	.21	.17	.15	.16	.14
		I	.29	.24	.22	.26	.22	.19	.21	.18
		H	.33	.28	.25	.29	.26	.23	.23	.21
		G	.37	.32	.28	.32	.28	.26	.26	.23
		F	.40	.35	.32	.35	.31	.28	.28	.26
		E	.44	.40	.36	.39	.35	.32	.32	.29
		D	.48	.43	.39	.42	.38	.35	.35	.32
		C	.51	.46	.42	.44	.40	.37	.37	.34
		B	.55	.50	.46	.48	.44	.41	.39	.37
		A	.57	.53	.49	.50	.46	.43	.41	.39
 <p>Open Top Opaque Sides Louvered Bottom MF .70</p>		J	.31	.29	.26	.28	.26	.24	.24	.23
		I	.38	.36	.34	.35	.33	.31	.31	.28
		H	.42	.39	.38	.37	.36	.35	.34	.33
		G	.45	.43	.41	.42	.39	.37	.36	.35
		F	.48	.45	.43	.43	.41	.39	.38	.37
		E	.54	.49	.48	.46	.44	.42	.41	.39
		D	.55	.53	.50	.49	.47	.45	.42	.42
		C	.58	.56	.53	.51	.49	.47	.44	.43
		B	.61	.58	.56	.53	.51	.49	.45	.44
		A	.62	.59	.58	.55	.53	.51	.47	.45
 <p>Open Top Plastic Sides Louvered Bottom MF .70</p>		J	.28	.24	.22	.24	.22	.20	.20	.18
		I	.34	.30	.29	.30	.27	.26	.25	.23
		H	.38	.35	.32	.33	.30	.29	.28	.26
		G	.41	.38	.36	.36	.34	.32	.30	.29
		F	.44	.41	.38	.38	.36	.34	.32	.30
		E	.48	.45	.42	.42	.39	.37	.34	.33
		D	.52	.48	.45	.44	.42	.40	.37	.36
		C	.54	.50	.47	.46	.44	.42	.38	.37
		B	.57	.53	.51	.48	.46	.44	.40	.39
		A	.58	.55	.53	.50	.48	.46	.41	.40

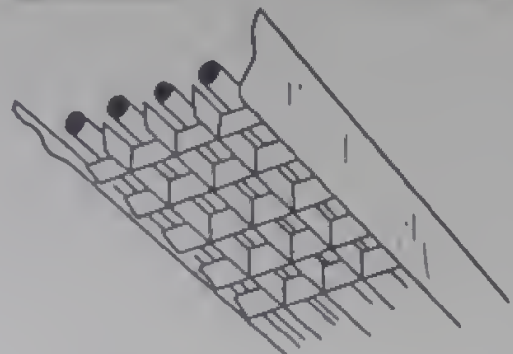
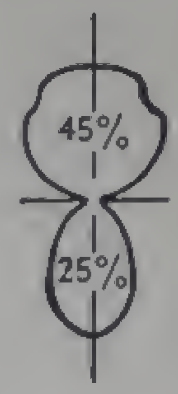
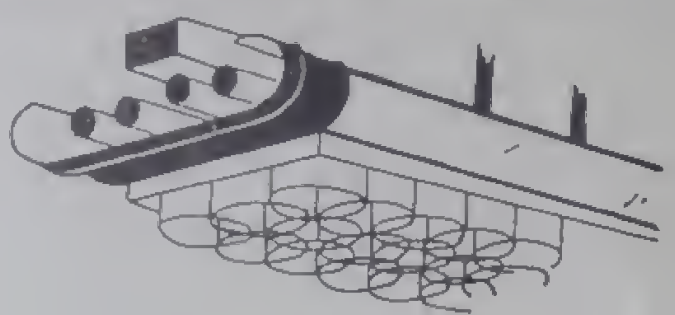
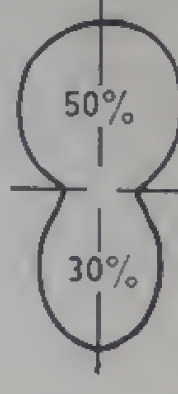
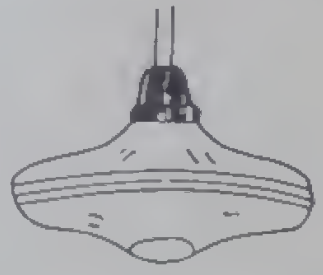
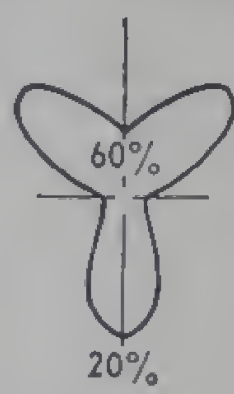
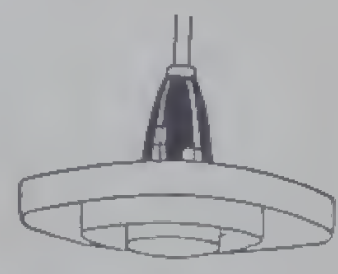
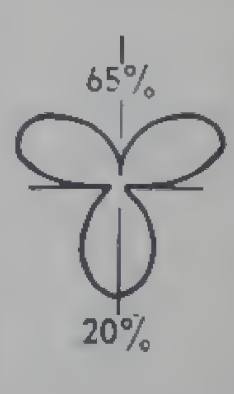
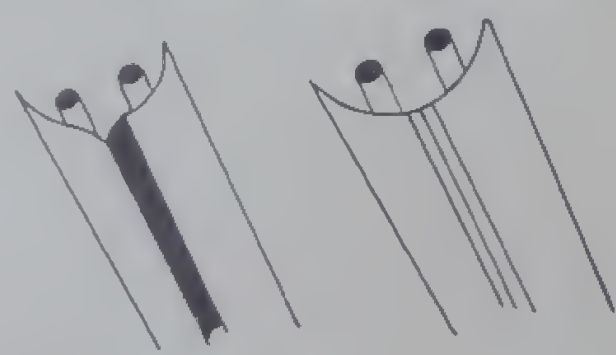
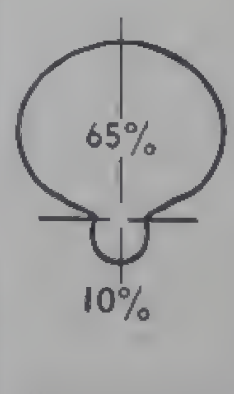

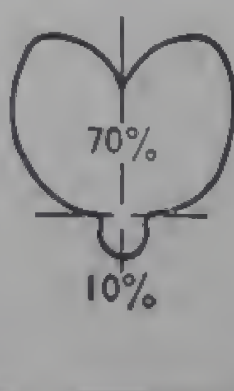
LIGHTING DESIGN DATA

UTILIZATION FACTORS

Luminaire	Distribution	Room Index	Ceiling 75%			Ceiling 50%			Ceiling 30%	
			Walls			Walls			Walls	
			50%	30%	10%	50%	30%	10%	30%	10%
 Open Grid, Deep Louver No. 38 MF .70		J	.24	.21	.20	.21	.19	.18	.18	.16
		I	.29	.27	.25	.25	.23	.22	.21	.20
		H	.32	.30	.28	.28	.26	.25	.23	.22
		G	.36	.33	.31	.31	.28	.27	.25	.24
		F	.38	.35	.33	.32	.30	.29	.26	.25
		E	.41	.38	.36	.35	.33	.31	.28	.27
		D	.44	.41	.39	.37	.35	.34	.30	.29
		C	.46	.43	.41	.38	.36	.35	.31	.30
		B	.48	.46	.44	.40	.38	.37	.32	.31
		A	.50	.48	.46	.42	.40	.38	.33	.32
 Unshielded Grid, Slimline No. 39 MF .75		J	.29	.23	.19	.26	.21	.18	.19	.16
		I	.37	.31	.27	.33	.28	.24	.26	.22
		H	.41	.36	.32	.36	.32	.29	.29	.26
		G	.46	.41	.36	.40	.36	.32	.32	.29
		F	.50	.44	.39	.43	.39	.35	.34	.32
		E	.55	.49	.45	.48	.44	.40	.39	.36
		D	.59	.54	.50	.52	.48	.45	.43	.41
		C	.62	.58	.54	.54	.50	.48	.45	.43
		B	.67	.63	.59	.58	.55	.52	.48	.47
		A	.70	.65	.62	.61	.57	.54	.50	.48
 Open Top, Plastic Sides Louvered Bottom No. 40 MF .70		J	.26	.23	.21	.23	.21	.19	.19	.17
		I	.32	.29	.27	.28	.26	.24	.23	.21
		H	.37	.33	.31	.31	.29	.27	.26	.24
		G	.40	.36	.34	.34	.31	.30	.28	.26
		F	.42	.39	.36	.36	.33	.32	.30	.28
		E	.46	.43	.40	.40	.37	.35	.32	.30
		D	.50	.46	.43	.42	.39	.38	.34	.33
		C	.52	.48	.45	.44	.41	.39	.35	.34
		B	.55	.52	.49	.46	.44	.42	.37	.36
		A	.57	.54	.51	.48	.45	.43	.39	.37
 Glass Enclosing or Louvered No. 41 MF .65		J	.24	.20	.17	.21	.17	.15	.15	.14
		I	.29	.25	.23	.26	.22	.20	.20	.18
		H	.33	.29	.26	.28	.26	.23	.22	.20
		G	.37	.33	.30	.32	.28	.26	.24	.23
		F	.40	.35	.32	.34	.30	.28	.26	.23
		E	.44	.40	.36	.37	.34	.31	.29	.27
		D	.47	.43	.40	.40	.37	.34	.32	.30
		C	.50	.46	.42	.42	.39	.36	.33	.31
		B	.53	.50	.47	.44	.42	.40	.35	.34
		A	.56	.51	.49	.47	.44	.41	.37	.35
 Suspended Box Type Glass Sides and Bottom No. 42 MF .65		J	.24	.21	.19	.21	.19	.17	.17	.15
		I	.29	.26	.24	.26	.23	.22	.21	.19
		H	.33	.30	.28	.28	.26	.24	.23	.21
		G	.36	.33	.31	.31	.28	.27	.25	.24
		F	.39	.36	.33	.33	.30	.29	.26	.25
		E	.42	.39	.37	.36	.33	.31	.29	.27
		D	.46	.42	.40	.38	.36	.34	.31	.29
		C	.48	.44	.42	.40	.37	.35	.32	.30
		B	.51	.48	.45	.42	.40	.38	.33	.32
		A	.52	.50	.48	.43	.41	.40	.35	.33
 Open Top, Glass Sides Louvered Bottom No. 43 MF .70		J	.26	.23	.20	.23	.20	.18	.18	.16
		I	.33	.29	.26	.28	.25	.23	.22	.20
		H	.36	.33	.30	.29	.28	.26	.25	.23
		G	.40	.36	.34	.34	.31	.29	.27	.26
		F	.43	.39	.36	.36	.33	.31	.29	.27
		E	.48	.44	.40	.40	.37	.35	.32	.30
		D	.51	.47	.44	.43	.40	.38	.34	.33
		C	.54	.50	.46	.45	.42	.40	.36	.34
		B	.57	.53	.51	.47	.45	.43	.37	.36
		A	.59	.56	.53	.49	.47	.44	.39	.38


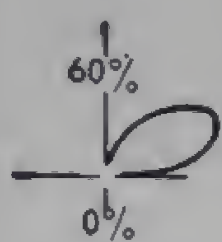

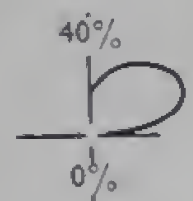

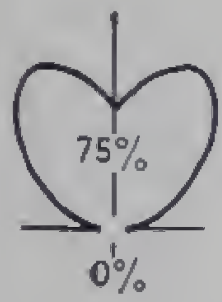

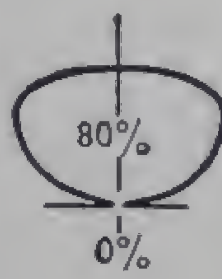
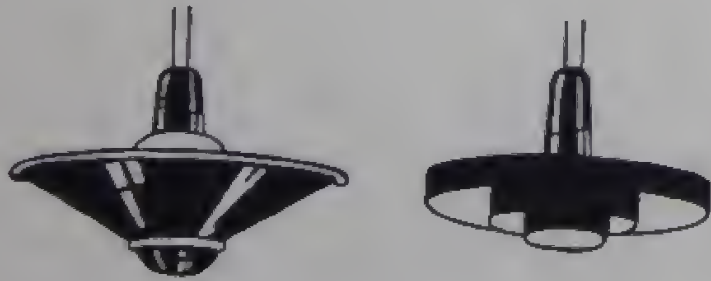
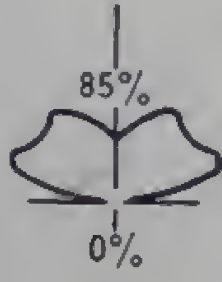
LIGHTING DESIGN DATA

UTILIZATION FACTORS

Luminaire	Distribution	Room Index	Ceiling 75%			Ceiling 50%			Ceiling 30%	
			Walls			Walls			Walls	
			50%	30%	10%	50%	30%	10%	30%	10%
 No. 44 Open Top—White Gloss Sides Louvered Bottom MF .70		J	.23	.19	.18	.18	.17	.16	.16	.14
		I	.27	.24	.23	.24	.21	.20	.19	.18
		H	.30	.28	.26	.26	.24	.23	.21	.20
		G	.34	.31	.29	.29	.26	.25	.23	.22
		F	.36	.33	.31	.30	.28	.27	.24	.23
		E	.39	.37	.34	.33	.30	.29	.26	.25
		D	.42	.39	.37	.35	.33	.31	.28	.27
		C	.44	.41	.39	.36	.34	.33	.29	.28
		B	.47	.44	.42	.38	.36	.35	.30	.29
		A	.48	.46	.44	.40	.38	.36	.31	.30
 No. 45 Open Top—Plastic Sides Louvered Bottom MF .70		J	.21	.17	.14	.18	.15	.12	.12	.10
		I	.27	.22	.20	.23	.19	.16	.16	.14
		H	.30	.26	.23	.25	.22	.19	.19	.16
		G	.34	.30	.26	.29	.25	.22	.21	.19
		F	.37	.32	.29	.31	.27	.24	.22	.21
		E	.41	.37	.34	.34	.31	.28	.25	.24
		D	.45	.41	.37	.37	.34	.31	.28	.27
		C	.48	.44	.40	.39	.36	.34	.30	.28
		B	.52	.48	.45	.42	.39	.37	.32	.31
		A	.54	.50	.47	.44	.41	.39	.34	.32
 No. 46 Glass or Plastic MF .65		J	.21	.17	.15	.16	.14	.12	.12	.09
		I	.26	.22	.20	.21	.18	.16	.15	.13
		H	.29	.26	.23	.23	.20	.19	.17	.15
		G	.33	.28	.26	.26	.23	.21	.18	.17
		F	.36	.32	.28	.28	.25	.23	.20	.20
		E	.39	.36	.32	.31	.28	.26	.22	.20
		D	.43	.38	.36	.33	.30	.28	.24	.22
		C	.45	.41	.38	.35	.32	.30	.25	.24
		B	.48	.46	.42	.37	.35	.34	.27	.26
		A	.51	.48	.45	.40	.37	.35	.28	.27
 No. 47 Semi-Silvered Bowl MF .70		J	.24	.20	.19	.19	.17	.16	.14	.13
		I	.30	.26	.24	.24	.22	.20	.18	.16
		H	.33	.30	.28	.26	.24	.22	.20	.18
		G	.37	.34	.31	.30	.27	.25	.22	.20
		F	.40	.36	.33	.32	.29	.27	.23	.22
		E	.44	.40	.38	.35	.32	.30	.25	.24
		D	.48	.44	.41	.37	.34	.33	.27	.26
		C	.50	.46	.44	.39	.36	.34	.28	.27
		B	.54	.50	.48	.41	.39	.37	.30	.28
		A	.56	.52	.50	.43	.41	.39	.31	.30
 No. 48 Plastic Bowl MF .65		J	.16	.13	.11	.12	.10	.08	.07	.06
		I	.21	.17	.15	.16	.13	.11	.08	.08
		H	.24	.20	.18	.17	.15	.13	.11	.09
		G	.27	.23	.20	.20	.17	.15	.12	.11
		F	.30	.26	.22	.22	.19	.17	.13	.12
		E	.33	.30	.27	.24	.21	.20	.15	.14
		D	.37	.33	.30	.26	.24	.22	.17	.16
		C	.40	.35	.32	.28	.26	.24	.18	.17
		B	.43	.39	.36	.30	.28	.27	.19	.18
		A	.45	.41	.39	.33	.30	.28	.21	.19
 No. 49 Glass or Plastic Bowls MF .65		J	.18	.14	.13	.13	.11	.09	.08	.07
		I	.23	.19	.17	.17	.14	.12	.09	.07
		H	.26	.22	.20	.19	.16	.14	.12	.10
		G	.30	.25	.22	.21	.19	.17	.13	.12
		F	.32	.28	.25	.24	.21	.19	.14	.13
		E	.36	.32	.29	.27	.23	.21	.16	.15
		D	.40	.35	.32	.29	.26	.24	.18	.17
		C	.42	.38	.35	.30	.28	.26	.19	.18
		B	.46	.42	.40	.33	.31	.29	.21	.20
		A	.48	.44	.42	.35	.32	.31	.24	.21

LIGHTING DESIGN DATA

UTILIZATION FACTORS

Luminaire	Distribution	Room Index	Ceiling 75%			Ceiling 50%			Ceiling 30%	
			Walls			Walls			Walls	
			50%	30%	10%	50%	30%	10%	30%	10%
 No. 50 Fluorescent Cove MF .60		J	.12	.09	.08	.08	.07	.05	.04	.03
		I	.15	.12	.11	.10	.08	.07	.05	.04
		H	.17	.15	.13	.11	.10	.08	.06	.05
		G	.20	.17	.15	.14	.11	.10	.07	.06
		F	.22	.19	.17	.15	.13	.11	.07	.07
		E	.25	.22	.20	.17	.14	.13	.08	.08
		D	.27	.24	.22	.18	.16	.15	.09	.09
		C	.29	.26	.24	.19	.17	.16	.10	.10
		B	.32	.30	.28	.21	.20	.19	.11	.11
		A	.34	.31	.29	.23	.21	.20	.12	.11
 No. 51 Open Fluorescent Cove MF .55		J	.08	.06	.05	.05	.04	.04	.02	.02
		I	.10	.08	.07	.07	.06	.05	.03	.03
		H	.12	.10	.09	.08	.06	.06	.04	.03
		G	.13	.11	.10	.09	.08	.07	.04	.04
		F	.15	.13	.11	.10	.08	.08	.05	.04
		E	.17	.15	.13	.11	.10	.09	.06	.05
		D	.18	.16	.15	.12	.11	.10	.06	.06
		C	.19	.18	.16	.13	.12	.11	.07	.06
		B	.21	.20	.18	.14	.13	.12	.08	.07
		A	.22	.21	.20	.15	.14	.13	.08	.08
 No. 52 Open Indirect Bowl MF .60		J	.15	.12	.10	.10	.08	.07	.04	.04
		I	.19	.15	.14	.13	.10	.09	.06	.05
		H	.22	.18	.16	.14	.12	.10	.08	.06
		G	.25	.21	.18	.17	.14	.13	.08	.08
		F	.27	.24	.21	.19	.16	.14	.09	.08
		E	.31	.27	.25	.21	.18	.16	.10	.10
		D	.34	.30	.28	.22	.20	.19	.12	.11
		C	.36	.33	.30	.24	.22	.20	.13	.12
		B	.40	.37	.34	.26	.25	.23	.14	.14
		A	.42	.39	.37	.28	.26	.25	.16	.14
 No. 53 Indirect MF.60		J	.16	.12	.11	.10	.08	.07	.05	.04
		I	.20	.16	.14	.14	.11	.09	.06	.06
		H	.23	.20	.17	.15	.13	.11	.08	.06
		G	.27	.23	.20	.18	.15	.14	.09	.08
		F	.29	.25	.22	.20	.17	.15	.10	.09
		E	.33	.29	.26	.22	.19	.18	.11	.10
		D	.36	.32	.30	.24	.22	.20	.13	.12
		C	.39	.35	.32	.26	.23	.21	.14	.13
		B	.43	.40	.37	.28	.26	.25	.15	.14
		A	.45	.42	.39	.30	.28	.26	.17	.15
 No. 54 Silver Bowl Lamps MF .70		J	.17	.13	.11	.11	.09	.08	.05	.04
		I	.21	.17	.15	.14	.12	.10	.07	.06
		H	.25	.21	.18	.16	.14	.12	.08	.07
		G	.28	.24	.21	.20	.16	.14	.09	.08
		F	.31	.27	.23	.21	.18	.16	.10	.09
		E	.35	.31	.28	.24	.20	.19	.12	.11
		D	.39	.34	.31	.26	.23	.21	.14	.13
		C	.41	.37	.34	.27	.25	.23	.14	.14
		B	.46	.42	.39	.30	.28	.26	.16	.15
		A	.48	.44	.42	.32	.30	.28	.18	.16

GENERAL ELECTRIC "STATESMAN"



Ceiling Type Statesman

The Statesman† is a superb new luminaire that is beyond all comparison for lighting effectiveness and architectural beauty. Gracefully proportioned and modern in design, this luminaire is suitable for general and private offices, stores, schools, drafting rooms, banks, libraries . . . and other commercial applications where efficient lighting of the semi-direct type is desired.

The Statesman is equipped with a new curved-type Holophane Controlens which collects the light from the lamps and bends it downward in an intensive pattern, producing maximum illumination over the useful areas. This bending action eliminates all glare at normal viewing angles. Even in large rooms, this shielding feature prevents any possibility of cumulative glare which ordinarily results

from the use of many light sources. The upper refracting lenses spread an appreciable amount of illumination across the ceiling to furnish a luminous background for the lighting system. This helps to soften shadows and reduces brightness contrasts within the field of view.

The Statesman is designed to take two, three or four 40 watt fluorescent lamps. It is available in two models: the Ceiling Type and the Suspension Type. Each model may be installed in continuous runs if desired.

Luminaires for 25 cycle operation may be obtained with opaque metal top panels in place of the upper refracting lenses. See catalogue specifications below.

GLASS TOP PANELS		METAL TOP PANELS		Lamp Watts	Description	Line Voltage	Approx. Watts Consumed	Dimensions (Inches)			Ship. Wt
Cat. No.	Price Each	Cat. No.	Price Each					Length	Width	Depth	
60 CYCLE											
9110-A	\$72.00	.....	.....	2-40	Ceiling Type	110-125	97	48 $\frac{1}{8}$	14 $\frac{1}{4}$	8 $\frac{1}{2}$	60
9111-A	80.00	.....	.....	3-40	Ceiling Type	110-125	143	48 $\frac{1}{8}$	14 $\frac{1}{4}$	8 $\frac{1}{2}$	65
9112-A	85.00	.....	.....	4-40	Ceiling Type	110-125	194	48 $\frac{1}{8}$	14 $\frac{1}{4}$	8 $\frac{1}{2}$	70
25 CYCLE											
9110-B	80.00	9110-BM	\$60.00	2-40	Ceiling Type	110-125	106	48 $\frac{1}{8}$	14 $\frac{1}{4}$	8 $\frac{1}{2}$	70
		9111-BM	72.00	3-40	Ceiling Type	*208	140	48 $\frac{1}{8}$	14 $\frac{1}{4}$	8 $\frac{1}{2}$	74
9112-B	99.00	9112-BM	80.00	4-40	Ceiling Type	110-125	212	48 $\frac{1}{8}$	14 $\frac{1}{4}$	8 $\frac{1}{2}$	90
ROD HANGER ONLY											
9199	3.30	.....	.....	.....	.....	.....	...	.....	.....	24†	3

NOTE: When ordering Suspension Type, specify as two items, namely: Ceiling Type and Rod Hanger.

*3 phase

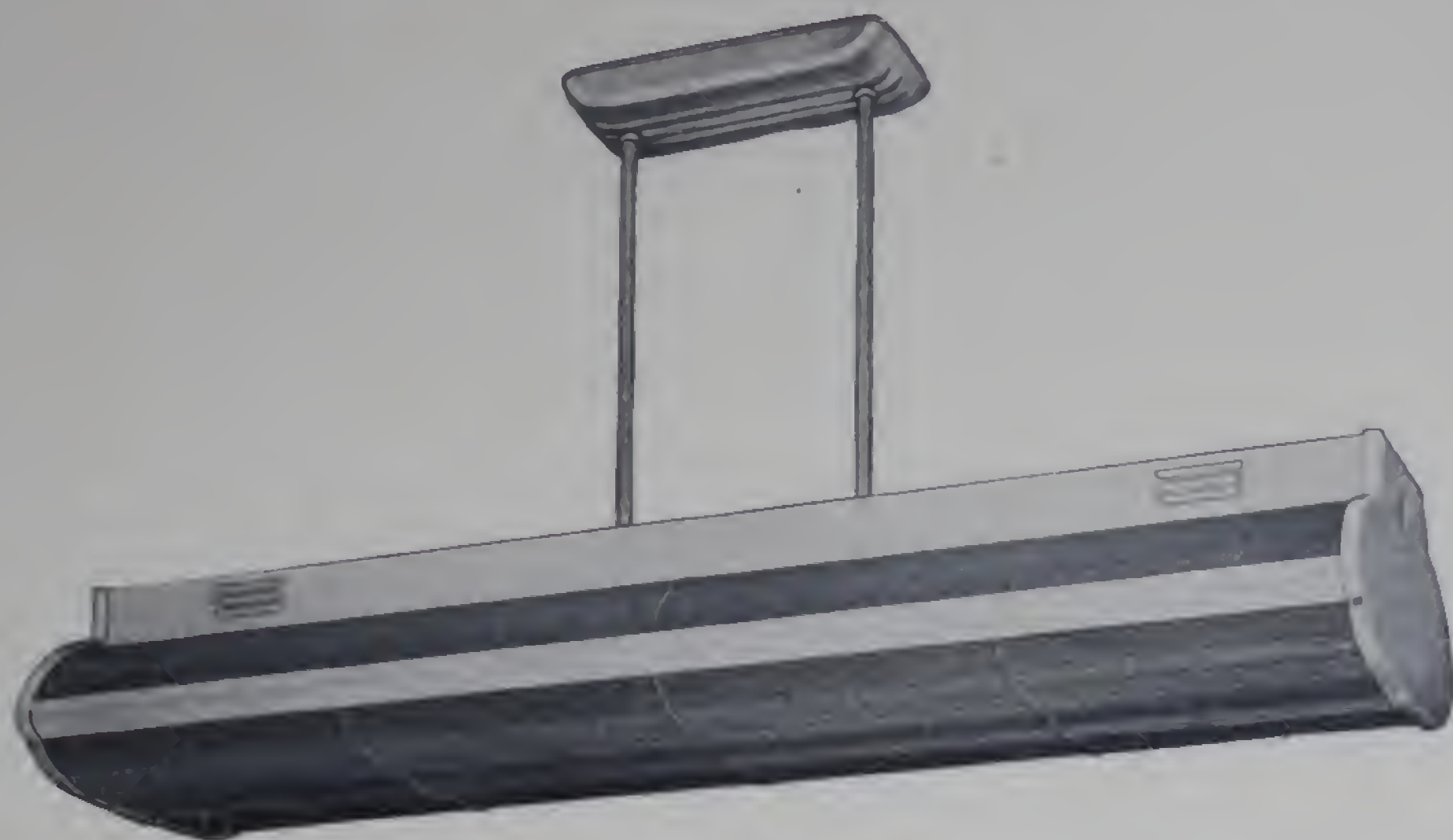
†Hanger length only, ceiling to top of fixture. Overall suspension to bottom of fixture, 32 inches.

For additional length hanger, add \$1.00 per foot, or fraction.

Fixtures for 66 $\frac{2}{3}$ cycle operation available at same price as 60 cycle fixtures, Cat. 9110-C, etc.

Lamps are not included in prices. ‡Manufactured under Holophane license.

GENERAL ELECTRIC "STATESMAN"



Suspension Type Statesman

Construction

Heavy gauge metal, finished in baked white enamel, is used throughout. All auxiliary equipment is mounted in the housing for ease of installation and maintenance. One piece reflector is easily detached from housing by two wing nuts, without disturbing wiring. The housing is ventilated to ensure proper cooling of the ballasts. Lamps can quickly be replaced by slipping out the four lenses. All glass parts are carefully fitted so as to exclude the collection of dust from the inside of the unit. Stamped canopy and stems are finished in satin alumilite.

Auxiliary Equipment

Luminaire is supplied wired, complete with FS-40 Watch Dog starters and approved high power factor ballasts which reduce stroboscopic effects to a minimum.

Description of Controlens

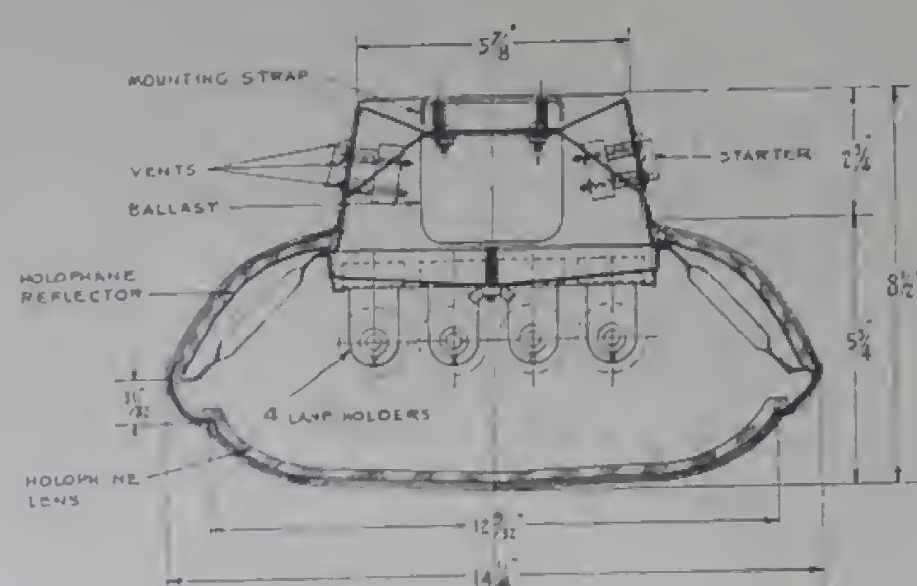
The lower refracting glass member consists of four Holophane Controlens butted together so as to function as one continuous lens. Properly aligned with the lamps, this Controlens directs 70% of the light which it intercepts into the useful 0-60 degree zone. The result is a highly efficient production of illumination and a notable absence of glare.

The upper glass member has a double function; i.e., that of a reflector to augment the light directed from the lamps to the Controlens and, thus, add to the downward component of the unit; and that of a refractor which, permitting certain light rays to pass through, spreads them widely across the ceiling so as to furnish a luminous background to the unit.



Continuous Mounting of Ceiling Type

GENERAL ELECTRIC "STATESMAN"



Cross Section of No. 9112

Distribution

Distribution of these units is intensive, with 70% of the total output directed into the useful 0-60 degree zone and 19% upward toward the ceiling.

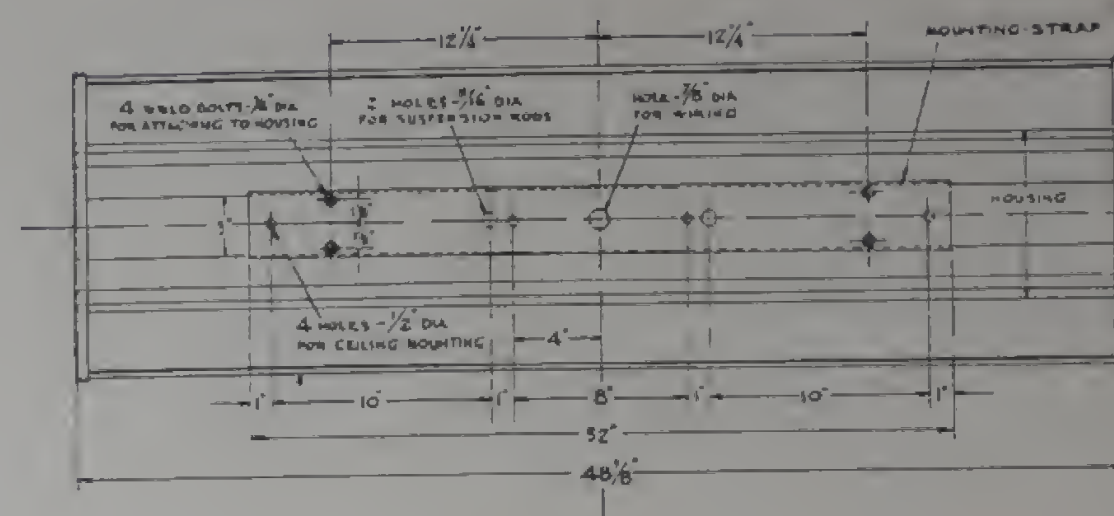
Spacing

Because of today's demands for high illumination levels, fluorescent units are usually closely spaced or ganged together in continuous runs. Maximum permissible spacing is, therefore, of little interest except where uniform illumination of a low level is required. In that case, the units may be spaced as far apart as 1.25 times their mounting height above the work.

Brightness

The brightness of these units in the glare zone is very low. Typical values in candle power per square inch are:

Angle from vertical	60°	70°	80°
No. 9110	1.1	0.6	0.6
No. 9111	1.2	0.8	0.7
No. 9112	2.1	1.1	1.0



Plan Showing Mounting Channel

Installation

A removable steel channel, 3 inches wide and 32 inches long, acts as the backbone of the luminaire and is used for direct attachment to the ceiling or supporting stems. Luminaire secures to channel by means of four weld bolts and wing nuts.

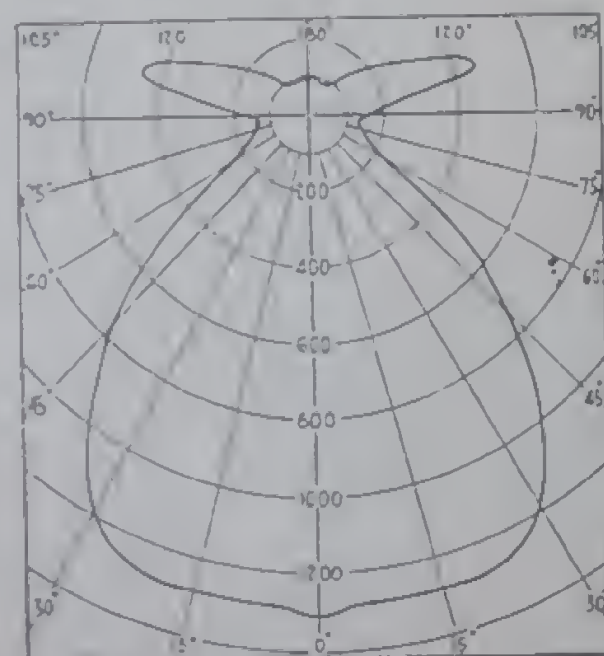
Continuous Mounting

To mount in continuous rows, remove knockouts from end plates and fasten luminaires together by nipple and locknuts.

Maintenance

To restore Holophane Prismatic Glassware to its high initial operating efficiency is as simple as this:
 1. Dip the glassware in an Oakite (or any common cleaning powder) and water solution. While the glassware is in the Oakite, very best results will be had if the glassware is scrubbed with a brush.
 2. Rinse in clear water. 3. Set in a clean place to dry. (With a cleaning project of any size, the first lens will be dry by the time the last one gets out of the rinse.)

ILLUMINATION PERFORMANCE



Distribution Curve—No. 9111

Room Index	Ceiling 75%		Ceiling 50%	
	Walls		Walls	
	50%	30%	50%	30%
J	.32	.27	.30	.27
I	.38	.35	.36	.34
H	.41	.38	.40	.37
G	.45	.42	.43	.41
F	.48	.46	.45	.43
E	.51	.49	.49	.47
D	.55	.51	.52	.49
C	.57	.54	.54	.52
B	.59	.57	.55	.54
A	.61	.58	.57	.55

Utilization Factors—No. 9110

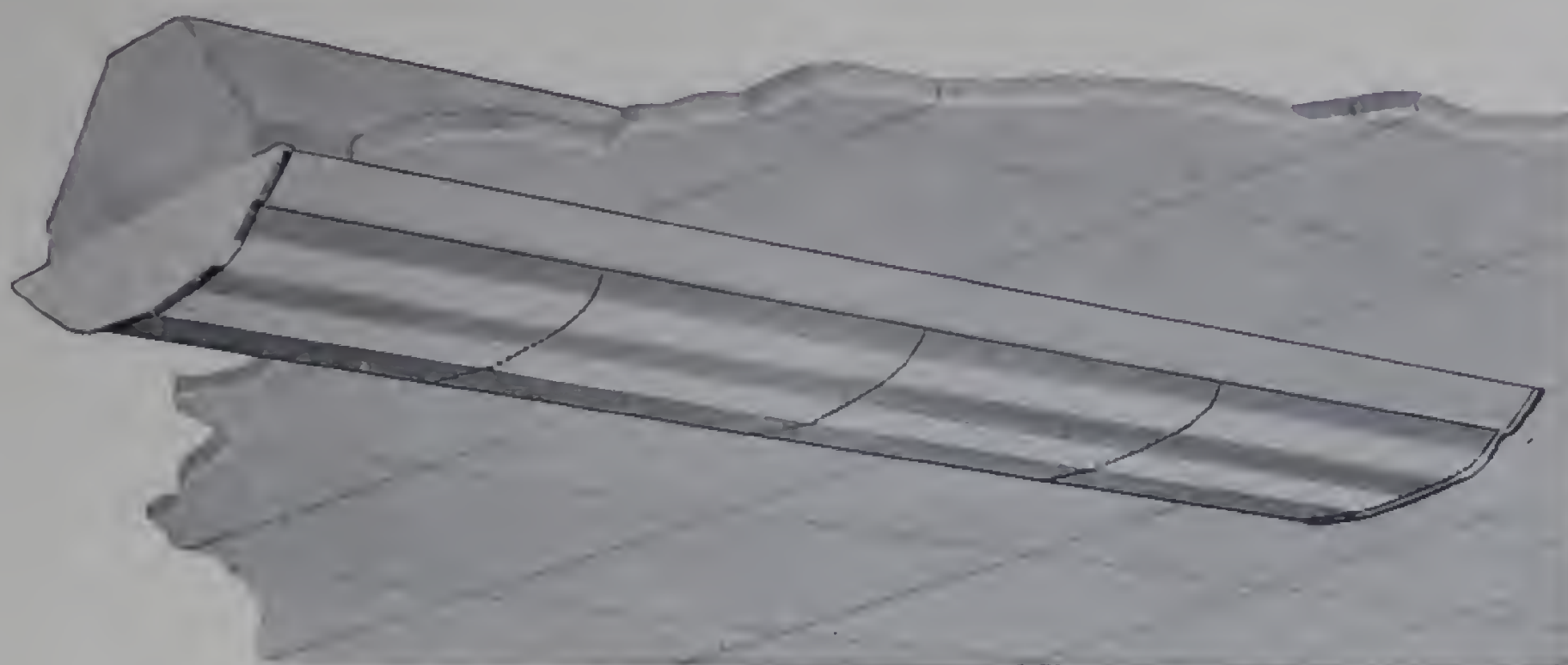
Room Index	Ceiling 75%		Ceiling 50%	
	Walls		Walls	
	50%	30%	50%	30%
J	.29	.26	.28	.26
I	.35	.32	.33	.31
H	.38	.35	.37	.35
G	.41	.38	.39	.37
F	.43	.41	.41	.39
E	.46	.45	.43	.42
D	.49	.47	.47	.44
C	.50	.48	.48	.47
B	.52	.50	.50	.48
A	.54	.53	.51	.50

Utilization Factors—No. 9111

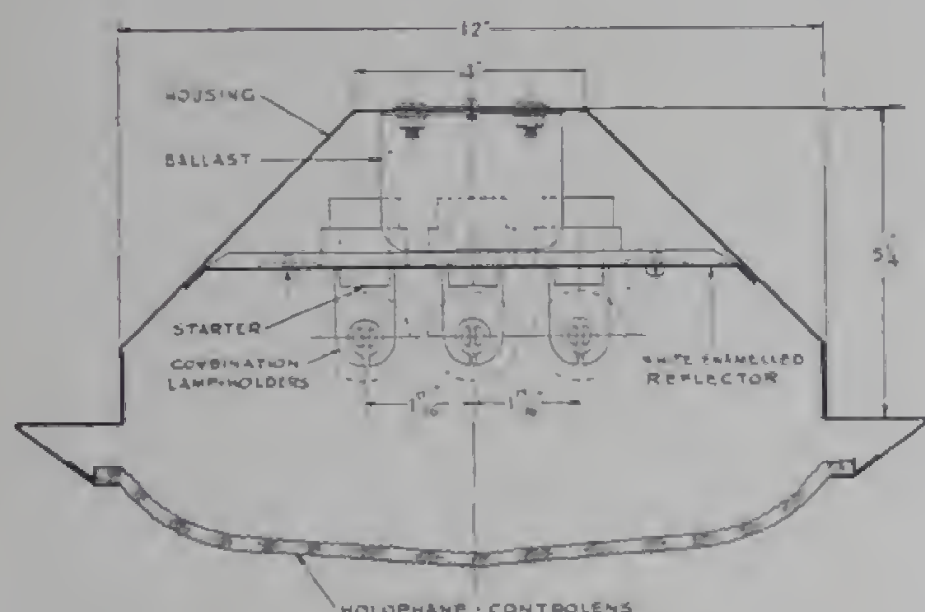
Room Index	Ceiling 75%		Ceiling 50%	
	Walls		Walls	
	50%	30%	50%	30%
J	.28	.25	.27	.25
I	.35	.32	.32	.30
H	.37	.35	.36	.34
G	.40	.38	.39	.36
F	.43	.40	.41	.39
E	.46	.44	.43	.41
D	.49	.47	.46	.44
C	.50	.48	.47	.45
B	.52	.49	.49	.47
A	.53	.51	.50	.48

Utilization Factors—No. 9112

GENERAL ELECTRIC "RECESSED STATESMAN"



Recessed Statesman — Individual Mounting



Cross Section of No. 3045

The recessed Statesman is exceptionally modern and attractive in appearance. The curved type Holophane Controlens directs the light to the working plane at high efficiency and with uniform low brightness. A small portion of the light is

directed to the ceiling, in order to reduce brightness ratios. This luminaire may be installed as individual units, or to give unbroken lines of light.

Reflectors are accurately contoured for correct lamp focusing. Lamps can quickly be replaced by tilting out the four Holophane Controlens. The luminaire can be installed in very shallow recesses as the depth of the housing is only 5 1/4 inches.

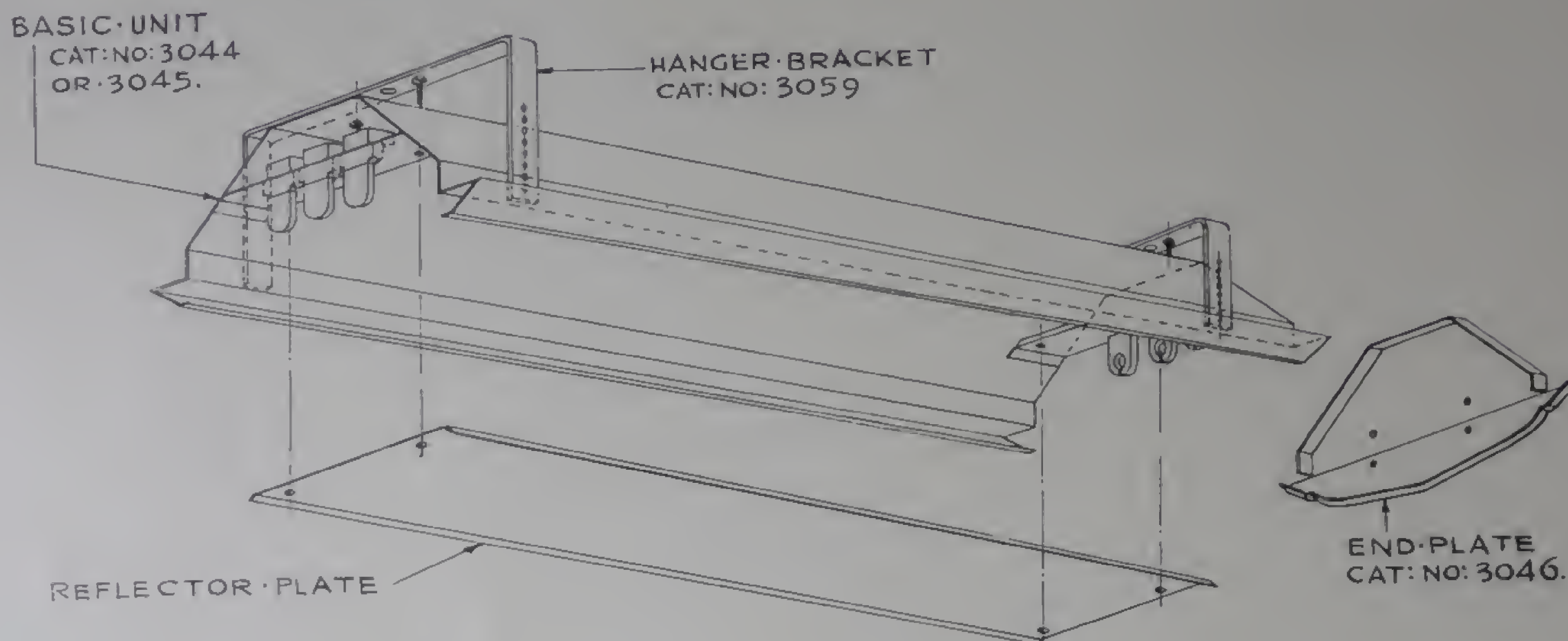
Housing is of heavy gauge steel with a removable reflector which permits access to the ballast and wiring. Knockouts are provided at top and ends. End plates are separate and are fastened to housing by two bolts. Face plates and reflecting surfaces are finished in baked white enamel; exposed portion of end plates is polished cast aluminum. Luminaire is supplied wired, complete with FS-40 starters and approved high power factor ballasts.

Cat. No.	Price Each	Lamp Watts	Description	Line Voltage	Approx. Watts Consumed	Recessing Dimensions (Inches)			Face Plate Width	Ship. Wt.
						Length	Width	Depth		
60 CYCLE										
3044-A	\$68.00	2-40	Basic Unit	110-125	97	48	12	5 1/4	15 3/4	50
3045-A	78.00	3-40	Basic Unit	110-125	143	48	12	5 1/4	15 3/4	54
25 CYCLE										
3044-B	76.00	2-40	Basic Unit	110-125	106	48	12	5 1/4	15 3/4	60
3045-B	90.00	3-40	Basic Unit	*208	140	48	12	5 1/4	15 3/4	65
ACCESSORIES										
3046	3.10	End plate, included in illustration. Must be specified separately.								5
3059	3.60	Hanger bracket. Must be specified separately.								3

*3-phase.
For 60 3/4 cycle operation, specify No. 3044-C or 3045-C, and use 60 cycle prices.
Lamps are not included in prices

GENERAL ELECTRIC "RECESSED STATESMAN"

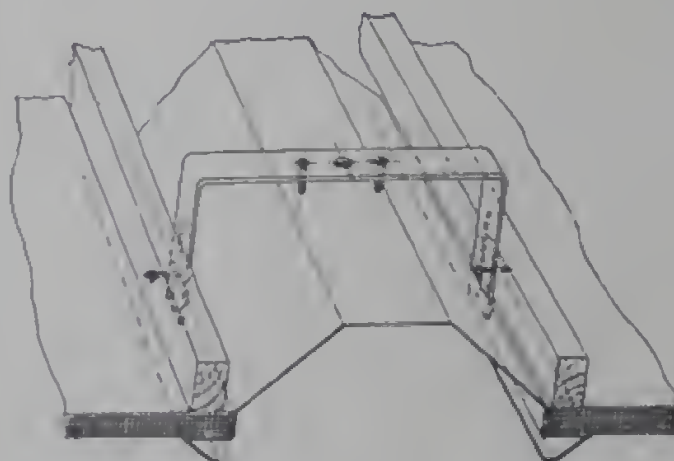
COMPONENT PARTS



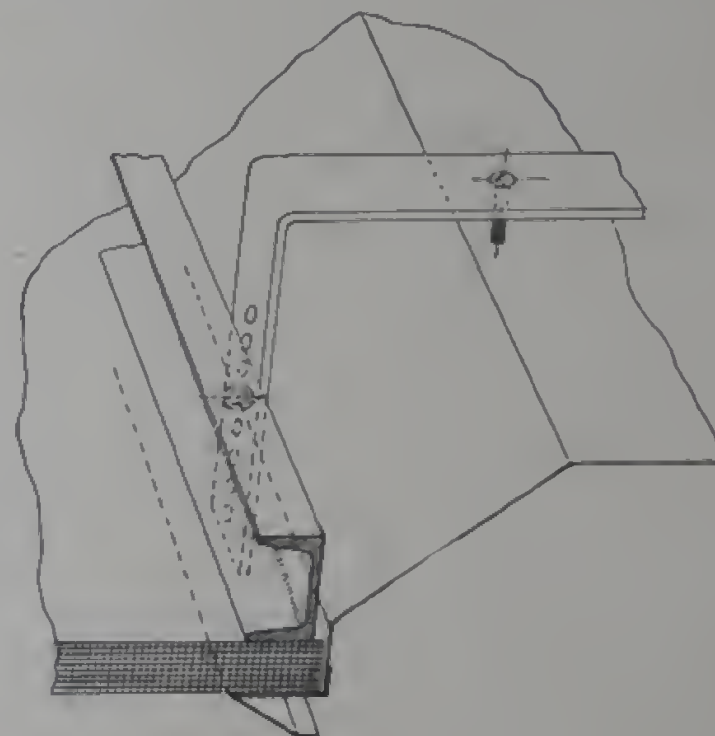
SUGGESTED INSTALLATION METHODS



Showing method of installing units by fastening directly to side framing members.



Showing method of installation using hanger assembly No. 3059 attached to wood framing member.



Showing method of installation using hanger assembly No. 3059 attached to channel iron framing member.

The recessed Statesman includes hangers and end plates to meet a variety of ceiling conditions. Their use will simplify installation and insure satisfactory lighting results. The exploded view tells at a glance how these component parts are assembled. Several methods of hanging are possible, but the use of hanger assembly, Cat. 3059, is recommended.

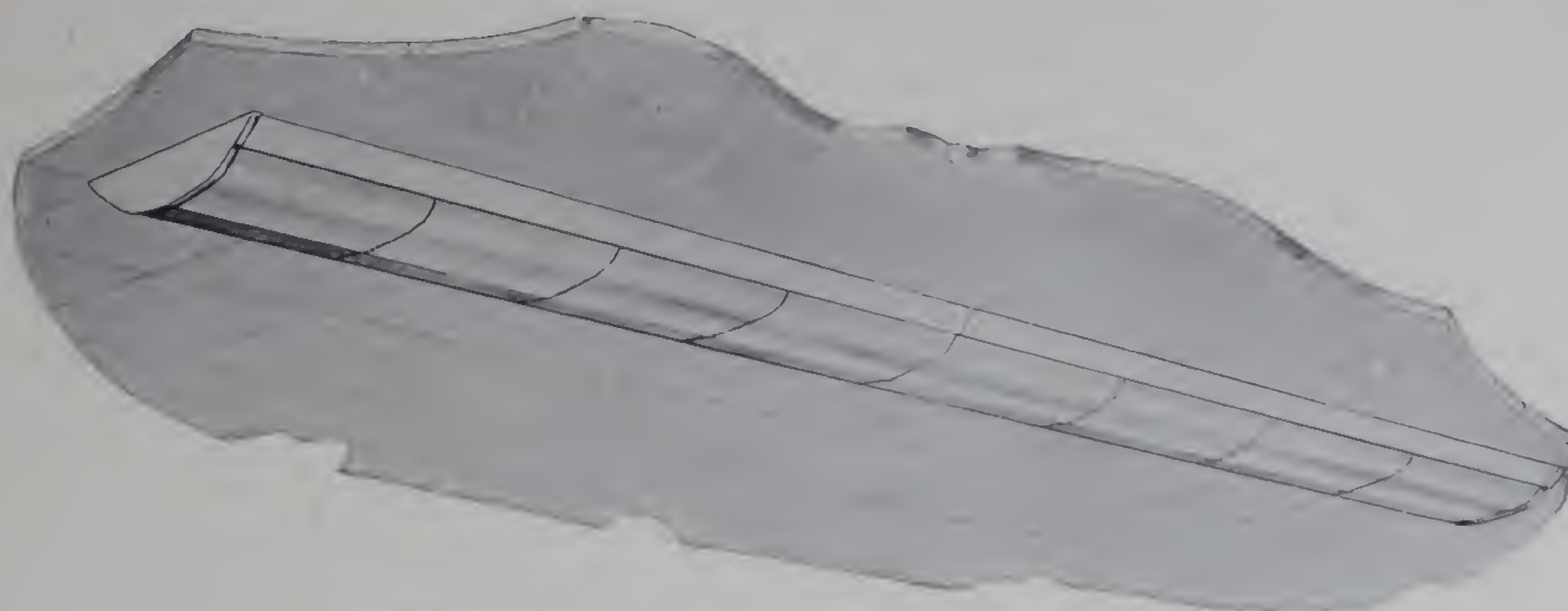
In single unit installations, either two light or three light, the basic unit, Cat. No. 3044 or 3045, must be equipped with two end plates, Cat. No. 3046, and with two hanger assemblies, Cat. No. 3059 which are optional.

In continuous row installations the basic unit

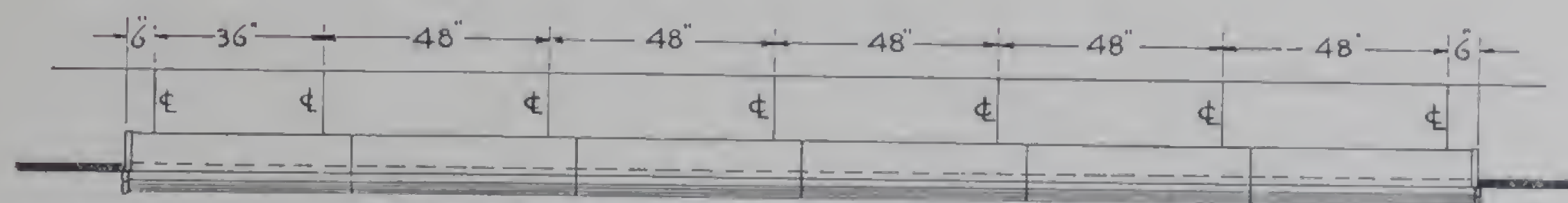
Cat. No. 3044 or 3045 requires one end plate Cat. No. 3046 at each end of the row, making two in all. The number of hanger assemblies Cat. No. 3059 will be one more than the number of basic units in the row as shown in the spacing guide on the next page.

Since there is no end plate used between adjoining units in a continuous row, a connecting strap is provided across each end of the housing. Two slotted holes are provided in each strap by which adjoining units may be bolted together. At the end unit in each row, the end plate Cat. No. 3046 is attached to this connecting strap before the unit is set in place.

GENERAL ELECTRIC "RECESSED STATESMAN"



Extended Run (8 feet) Consisting of Two Recessed Statesman Luminaires



CL = CENTRE LINE OF HANGER BRACKET CAT. NO. 3059

Spacing Guide for Hanger Bracket No. 3059 in Continuous Rows

Spacing

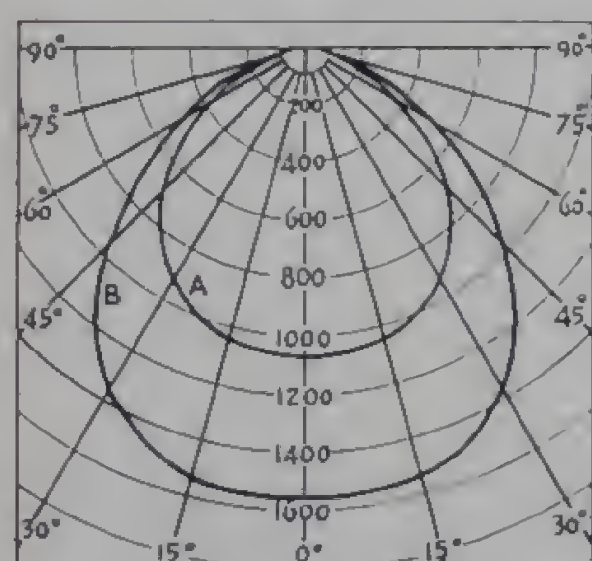
Because of today's demand for high illumination levels, fluorescent units are usually closely spaced or ganged together in continuous runs. Maximum permissible spacing is, therefore, of little interest except where uniform illumination of a low level is required. In that case, the units may be spaced as far apart as 1.25 times their mounting height above the work.

Brightness

The brightness of these units in the glare zone is very low. Typical values in candle power per brightest square inch projected area are:

Angle from vertical	60°	70°	80°
No. 3044	1.8	0.9	0.7
No. 3045	2.2	1.1	1.0

ILLUMINATION PERFORMANCE



A. Distribution Curve No. 3044

B. Distribution Curve No. 3045

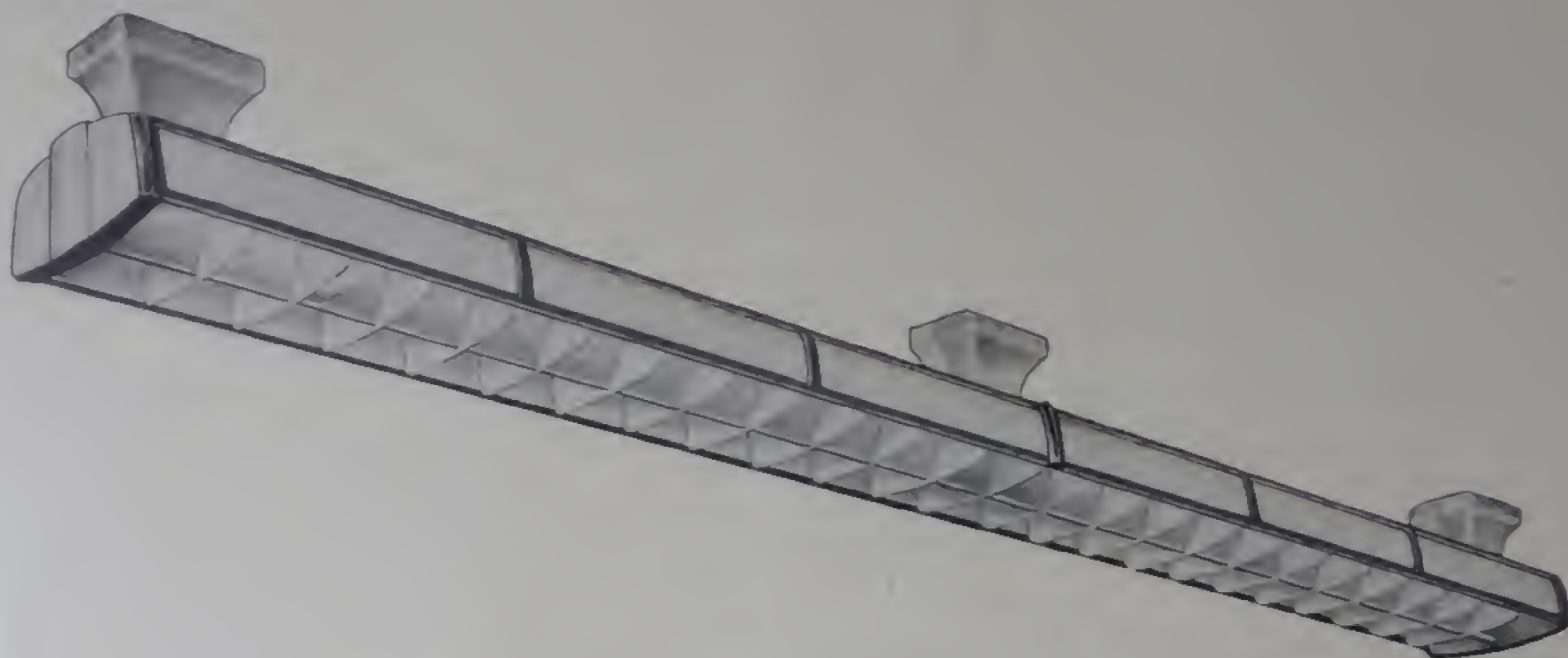
Room Index	Ceiling 75%			Ceiling 50%		
	Walls			Walls		
	50%	30%	10%	50%	30%	10%
J	.35	.32	.30	.34	.32	.29
I	.41	.39	.38	.41	.39	.37
H	.45	.42	.41	.44	.43	.41
G	.48	.45	.43	.47	.45	.44
F	.51	.49	.45	.49	.47	.46
E	.54	.52	.50	.53	.51	.50
D	.57	.55	.53	.56	.54	.53
C	.60	.57	.54	.57	.55	.54
B	.61	.59	.56	.58	.57	.56
A	.62	.60	.58	.60	.58	.57

Utilization Factors—No. 3044

Room Index	Ceiling 75%			Ceiling 50%		
	Walls			Walls		
	50%	30%	10%	50%	30%	10%
J	.32	.29	.28	.31	.29	.28
I	.39	.36	.35	.38	.35	.34
H	.42	.39	.38	.41	.39	.38
G	.45	.43	.41	.44	.42	.41
F	.47	.45	.43	.46	.44	.43
E	.50	.48	.46	.49	.48	.46
D	.53	.51	.49	.52	.50	.49
C	.55	.53	.50	.54	.51	.50
B	.56	.55	.53	.55	.53	.52
A	.59	.56	.55	.56	.55	.53

Utilization Factors—No. 3045

GENERAL ELECTRIC "GRENADIER"



Grenadier II—Eight Foot Canopy Type

Grenadiers provide a type of diffused lighting which is generally recognized to be efficient. Diffusion is secured and the surface brightness of the lamps is masked by a well designed louver which provides 35° shielding normal to the lamp and 25° parallel. The metal-framed plastic side panels and optional top reflector plates described below, complete the requirement of controlling the light and directing it where it is desired.

Two models are available: the Grenadier II, which utilizes two 40 W. fluorescent lamps in each 4' section; and the Grenadier IV using four 40 W. lamps in each 4' section. Both models can be used together, since they are alike except for width. Grenadier II is available in three styles: Stem, Canopy and On-Ceiling types. Grenadier IV is available in Stem and On-Ceiling types only. Each type may be installed in continuous runs if desired.

The On-Ceiling type of installation is particularly desirable in rooms with lower ceiling heights. The Canopy type of suspension is recommended for rooms having average height ceilings and the Stem type of suspension accommodates rooms with higher ceilings. On the latter two models the distribution of light may be regulated to a degree, at your option, by specifying that your Grenadiers be furnished:

1. Without top plate reflectors, thus securing approximately 50% of light on the ceiling for Grenadier II (55% for Grenadier IV); or
2. With slotted top plate reflectors which distribute about 92% of the light downward and 8% up; or
3. With solid top plate reflectors which distribute 100% of the light downward.

Thus the Grenadier may be used to secure



Grenadier II—Eight Foot On-Ceiling Type

GENERAL ELECTRIC "GRENADIER"



Grenadier II—Eight Foot Stem Type

a satisfactory lighting result under varying room conditions.

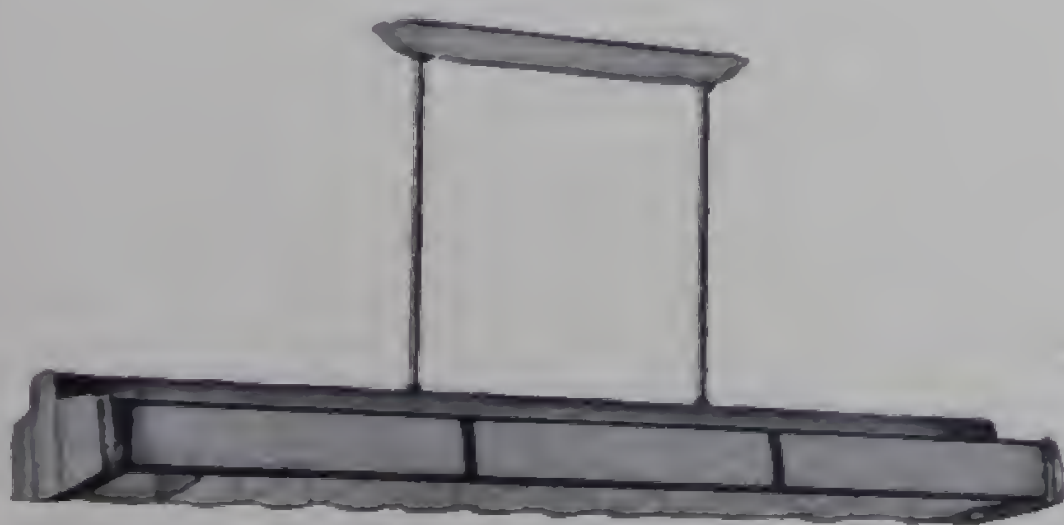
All metal parts of the Grenadier are beautifully finished in a new, soft, metallic satin. Metal-framed plastic side panels become a luminous white color when the lamps are turned on. Side panel, louver and channel cover are easily removed, thus facilitating maintenance. Grenadiers are designed with all reflecting surfaces turned downward so that they collect a minimum of dust particles.

Luminaires are supplied wired, complete with FS-40 Watch Dog starters and approved tulamp high power factor ballasts. They are available for 60 cycle 110-125 volt operation only. Overall suspension to bottom of reflector: Grenadier II—Stem type 24", Canopy type $8\frac{1}{8}"$, On-Ceiling type $4\frac{5}{8}"$. Grenadier IV—Stem type $25\frac{1}{8}"$, On-Ceiling type $5\frac{15}{16}"$.

The Single Unit

Small rooms and corridors frequently require single 4' units to match continuous installations in large rooms. Grenadier II single units are made in Stem, Canopy and On-Ceiling styles. Grenadier IV single units are available in Stem and On-Ceiling styles.

Even in the single units, lamps are easy to replace as the louver and channel cover are fastened at the ends with spring clips and are easily removed when clips are released.



Grenadier IV—Four Foot Stem Type

GENERAL ELECTRIC "GRENADIER"

ORDERING INFORMATION

Grenadier II

Continuous runs of the Grenadier II are made up of bodies, end cap assembly, and either No. 20 strap assembly (On-Ceiling Type), No. 23 ceiling canopy assembly (Canopy Type) or No. 24 single stem assembly (Stem Type). When ordering continuous runs for an installation, specify (for each row) (a) *one* No. 25 end cap assembly, (b) the required number of bodies, and (c) *the same number plus one* of No. 20 strap assembly, or No. 23 ceiling canopy assembly, or No. 24 single stem assembly.

For example, if there are six Grenadier II On-Ceiling type fixtures in a row, itemize as follows:

- 6—No. GRL-248-B Bodies with louvers and plastic side panels.
- 7—No. 20 Strap assemblies (Substitute No. 21 for each outlet box in run).
- 1—No. 25 End cap assembly.

Or for six Canopy type fixtures in a row:

- 6—No. GRL-248-B Bodies with louvers and plastic side panels.
- 7—No. 23 Ceiling canopy assemblies.
- 1—No. 25 End cap assembly.

Or for six Stem type fixtures in a row:

- 6—No. GRL-248-B Bodies with louvers and plastic side panels.
- 7—No. 24 Single stem assemblies.
- 1—No. 25 End Cap assembly.

The Grenadier II for individual mounting consists of one No. GRL-248-B body, one No. 25 end cap assembly, and either two No. 20 strap assemblies, or one No. 23 ceiling canopy assembly, or one No. 22 double stem assembly.

Top plate reflectors No. 29 and 30 should be specified separately when required.

Grenadier IV

Continuous runs of the Grenadier IV are made up of bodies, end cap assembly, and either No. 40 strap assembly (On-Ceiling Type) or No. 44 single stem assembly (Stem Type). When ordering continuous runs for an installation, specify (for each row) (a) *one* No. 45 end cap assembly, (b) the required number of bodies, and (c) *the same number plus one* of No. 40 strap assembly or No. 44 single stem assembly.

For example, if there are six Grenadier IV On-Ceiling type fixtures in a row, itemize as follows:

- 6—No. GRL-448-B Bodies with louvers and plastic side panels.
- 7—No. 40 Strap assemblies (Substitute No. 41 for each outlet box in run).
- 1—No. 45 End cap assembly.

Or for six Stem type fixtures in a row:

- 6—No. GRL-448-B Bodies with louvers and plastic side panels.
- 7—No. 44 Single stem assemblies.
- 1—No. 45 End cap assembly.

The Grenadier IV for individual mounting consists of one No. GRL-448-B body, one No. 45 end cap assembly, and either two No. 40 strap assemblies, or one No. 12 double stem assembly.

Top plate reflectors No. 49 and 50 should be specified separately when required.

*Cat. No.	Price Each	Cycles	Lamp Watts	Description	Std Susp	Ship. Wt
GRENADIER II						
GRL-248-B	\$36.00	60	2-40	Body with louvers and plastic side panels.	4 1/8"	26
20	.40			On-Ceiling strap assembly.	1 1/2"	1
21	.70			On-Ceiling outlet box cover assembly.	1 1/2"	1
22	4.70			Double stem assembly.	20"	3
23	2.30			Ceiling canopy assembly.	4"	2
24	1.80			Single Stem assembly.	20"	2
25	2.80			End cap assembly.		4
16	.80			Canopy extension for No. 24 to house switch.		1 1/2
29	2.40			Set of 2 top plate reflectors not pierced.		4
30	2.40			Set of 2 top plate reflectors pierced.		4
GRENADIER IV						
GRL-448-B	\$63.00	60	4-40	Body with louvers and plastic side panels.	5 1/2"	45
40	.50			On-Ceiling strap assembly.	1 1/2"	1
41	.80			On-Ceiling outlet box cover assembly.	1 1/2"	1
12	5.30			Double stem assembly.	20"	3
44	2.20			Single stem assembly.	20"	2
45	3.50			End cap assembly.		5
16	.80			Canopy extension for No. 44 to house switch.		1
49	3.50			Set of 2 top plate reflectors not pierced.		4
50	3.50			Set of 2 top plate reflectors pierced.		4

*Catalogue numbers are for 110-125 volt operation.
Lamps are not included in prices.
For additional length rod hanger, add \$1.00 per foot or fraction.

GENERAL ELECTRIC "GRENADIER"
LIGHTING DESIGN DATA

The tables given below indicate the number of square feet allowable per luminaire for varying interior conditions and for specific levels of illumination. To find the number of units required to light a room, divide the total square foot area by the proper figure chosen below. Figures are based on present databook ratings for 4500° white lamps.* Light finish means a ceiling reflection of 75%, walls 50%; medium finish indicates ceiling 50%, walls 30%. Careful use of these data will provide the desired result.

Utilization Factors

This brings together all of the factors that affect the utilization of light. The figure obtained by reference to the table (for the type of fixtures used, the size and finish of the room in which these are to be installed) is the percentage of the lumens given out by the lamps that reaches the working plane. For example, a Utilization Factor of .40 means that 40 per cent of the light is useful in producing foot-candles and that 60 per cent is absorbed by the walls, ceiling and the fixture itself.

GRENADIER II

LUMINAIRE				SQUARE FEET PER LUMINAIRE					
Luminaire Model	Lamps	M. F.	Average Footcandles in Service	Large Room Width 4 times height		Medium Room Width 2 times height		Small Room Width equals height	
				Light Finish	Medium Finish	Light Finish	Medium Finish	Light Finish	Medium Finish
Grenadier II Stem Type	Two 40-W Fluorescent 4500° White*	0.70	30	56	45	47	38	37	29
			40	42	34	35	29	28	22
			50	34	27	28	23	22	18
			60	28	23	24	19	19	15

GRENADIER IV

LUMINAIRE				SQUARE FEET PER LUMINAIRE					
Luminaire Model	Lamps	M.F.	Average Footcandles in Service	Large Room Width 4 times height		Medium Room Width 2 times height		Small Room Width equals height	
				Light Finish	Medium Finish	Light Finish	Medium Finish	Light Finish	Medium Finish
Grenadier IV Stem Type	Four 40-W Fluorescent 4500° White*	0.70	30	106	84	88	71	69	55
			40	79	63	66	53	51	41
			50	64	51	53	42	41	33
			60	53	42	44	35	34	27

*Square feet per luminaire values will be 10 per cent higher for 3500° white lamps, 9 per cent lower for daylight lamps, and 18 per cent lower for soft white lamps.

GRENADIER II—UTILIZATION FACTORS

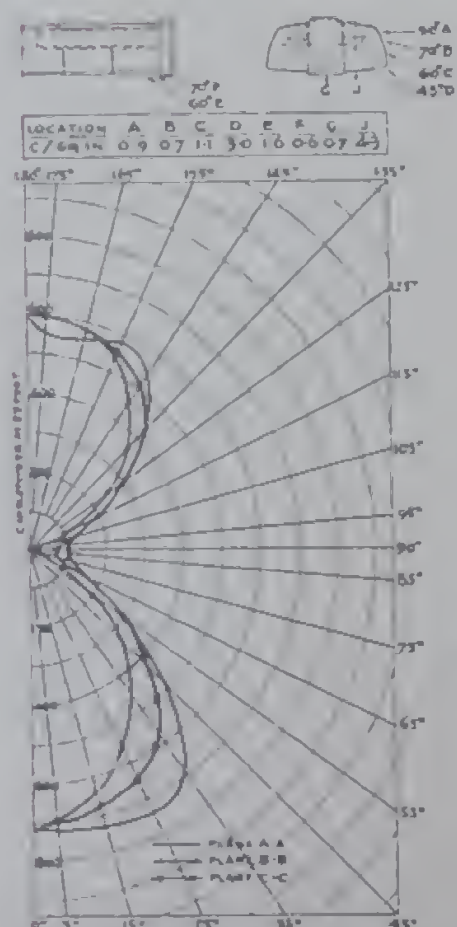
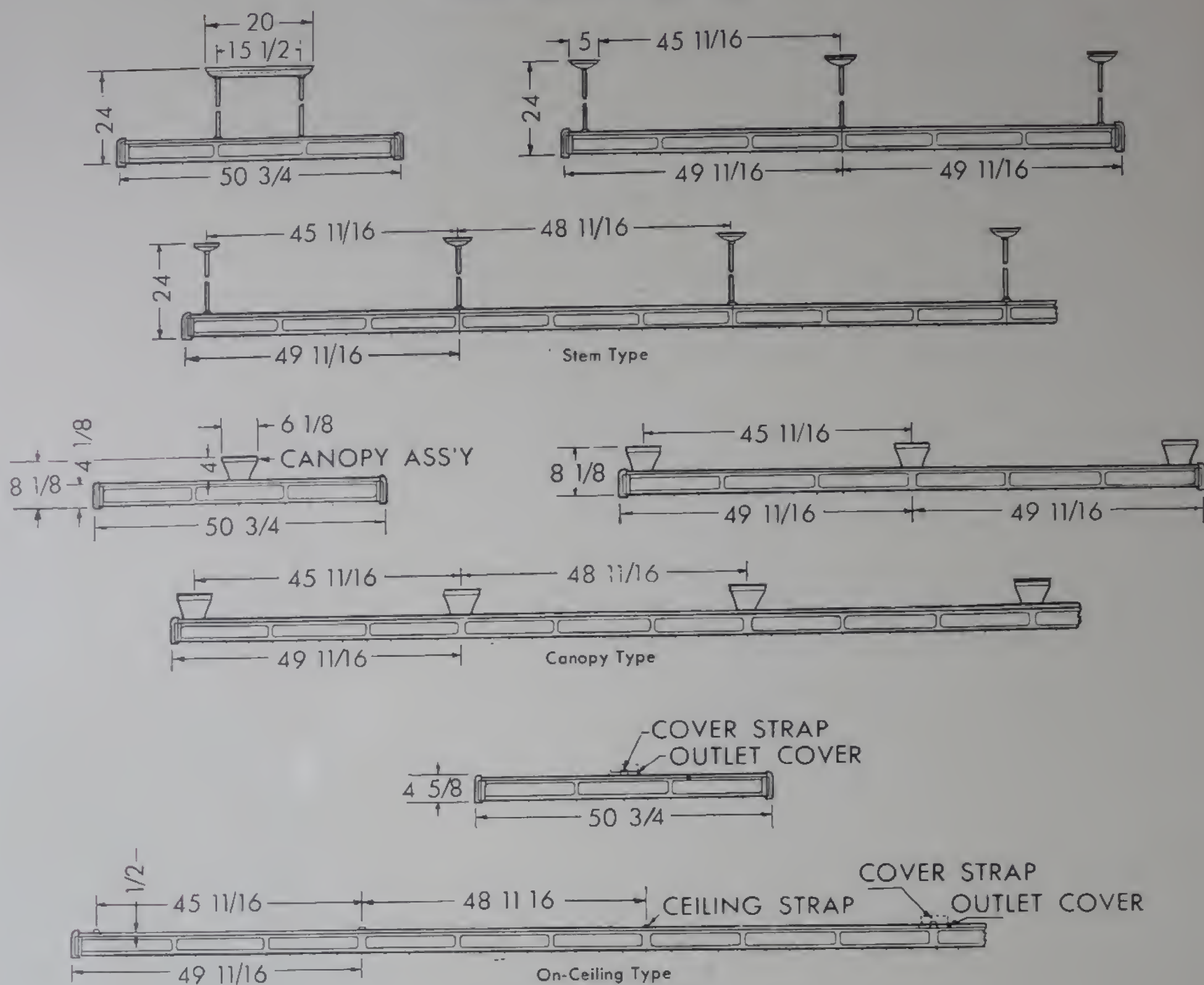
Distribution	Room Index	Ceiling 75%		Ceiling 50%	
		Walls		Walls	
		50%	30%	50%	30%
MF = .70 Grenadier II Stem Type	J	.28	.24	.24	.22
	I	.34	.30	.30	.27
	H	.38	.35	.33	.30
	G	.41	.38	.36	.34
	F	.44	.41	.38	.36
	E	.48	.45	.42	.39
	D	.52	.48	.44	.42
	C	.54	.50	.46	.44
	B	.57	.53	.48	.46
	A	.58	.55	.50	.48
		39.1% ↑ 38.8% ↓			

GRENADIER IV—UTILIZATION FACTORS

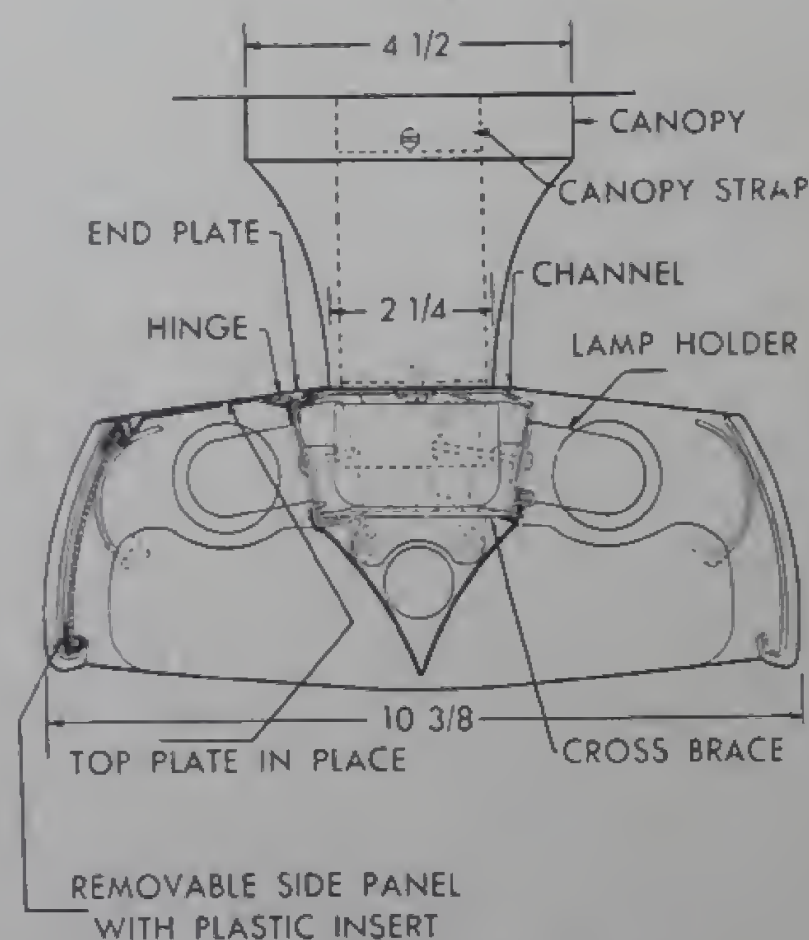
Distribution	Room Index	Ceiling 75%		Ceiling 50%	
		Walls		Walls	
		50%	30%	50%	30%
MF = 0.70 Grenadier IV Stem Type	J	.26	.22	.23	.20
	I	.32	.28	.28	.25
	H	.35	.32	.31	.28
	G	.39	.36	.34	.31
	F	.41	.38	.36	.33
	E	.45	.42	.39	.36
	D	.49	.45	.41	.39
	C	.51	.48	.43	.41
	B	.54	.51	.45	.43
	A	.55	.53	.47	.45
		43.0% ↑ 34.5% ↓			

GENERAL ELECTRIC "GRENADIER II"

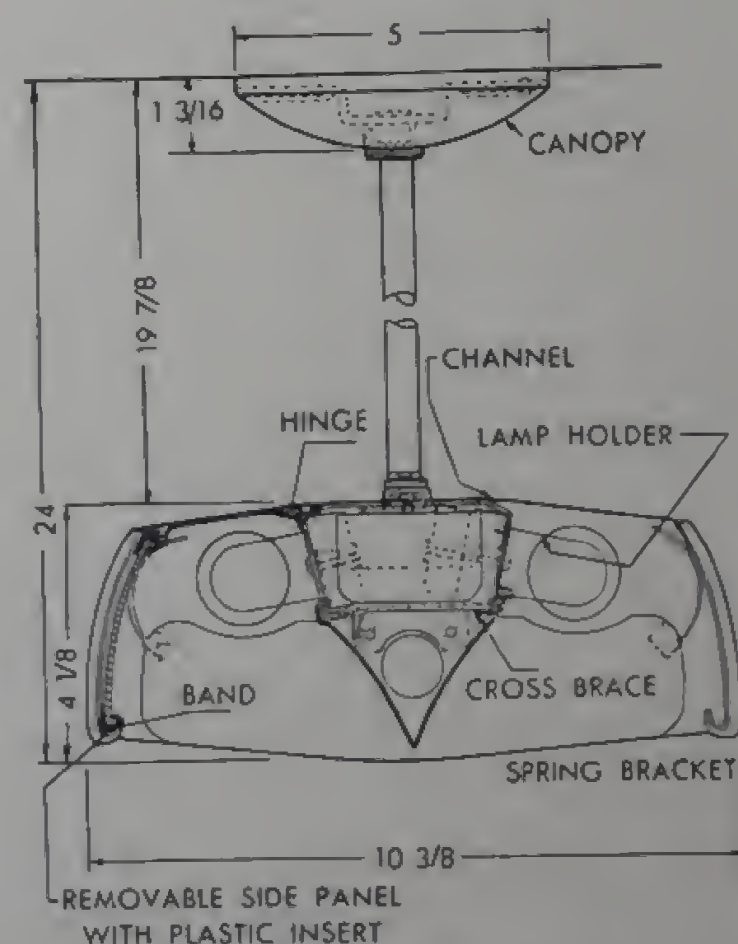
DIMENSIONAL DETAILS



Distribution Curve



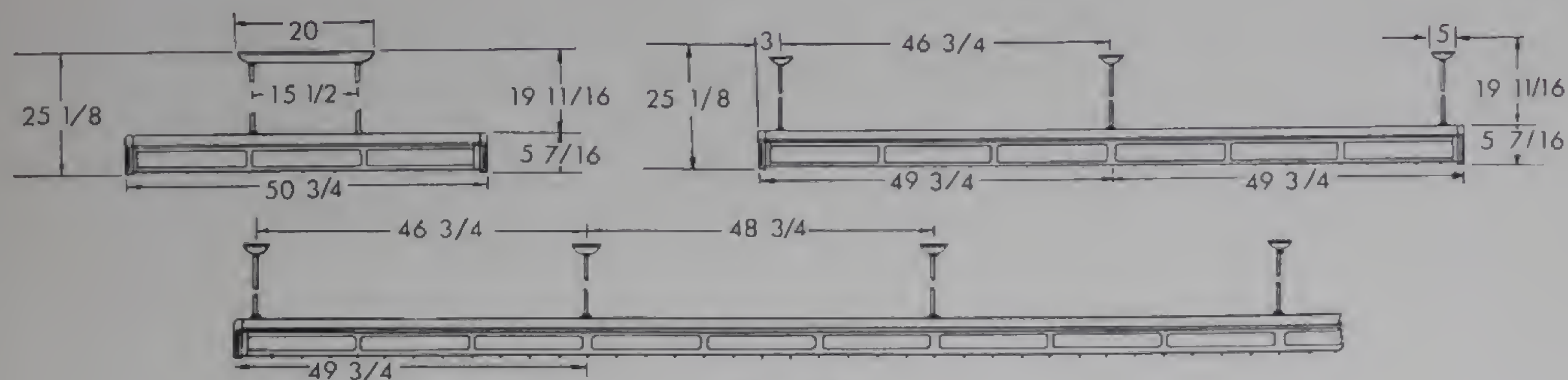
Cross Section of Canopy Type



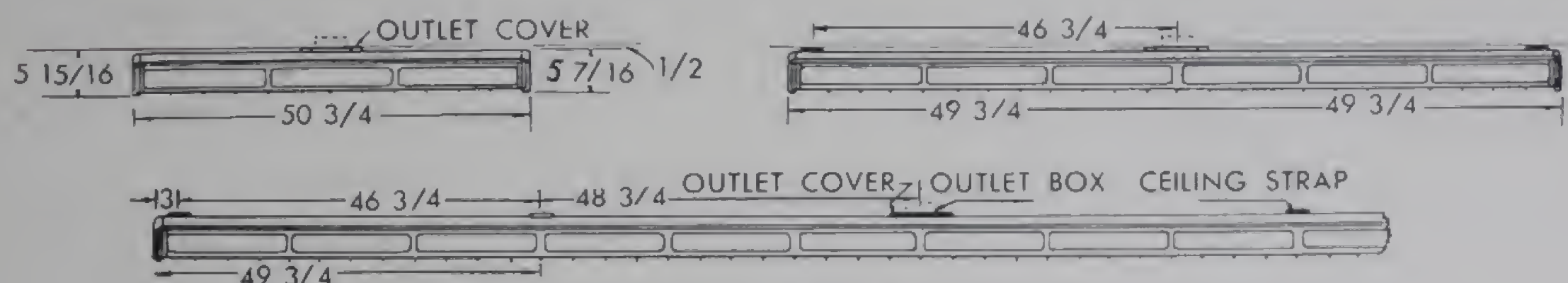
Cross Section of Stem Type

GENERAL ELECTRIC "GRENADIER IV"

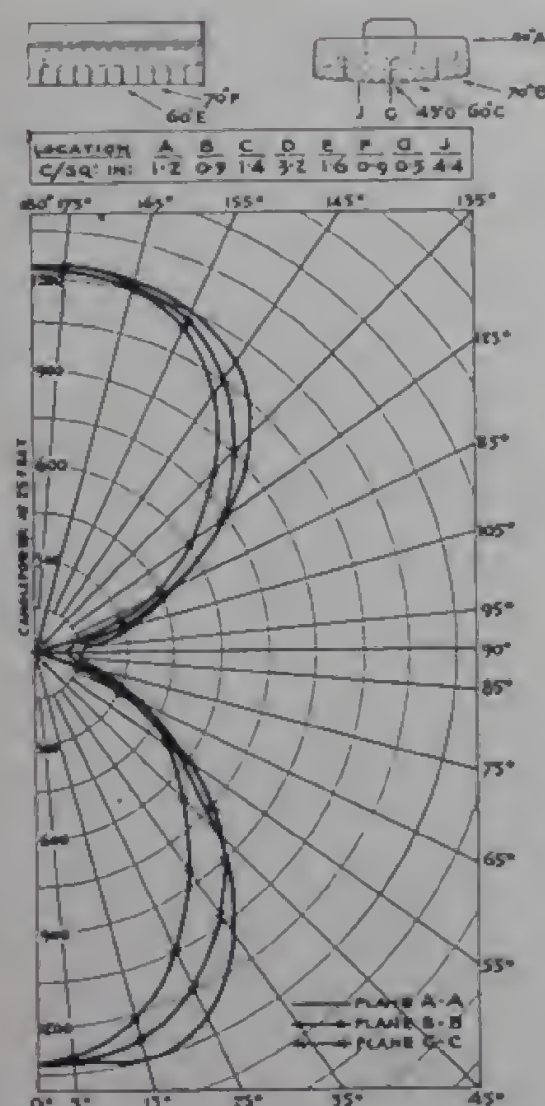
DIMENSIONAL DETAILS



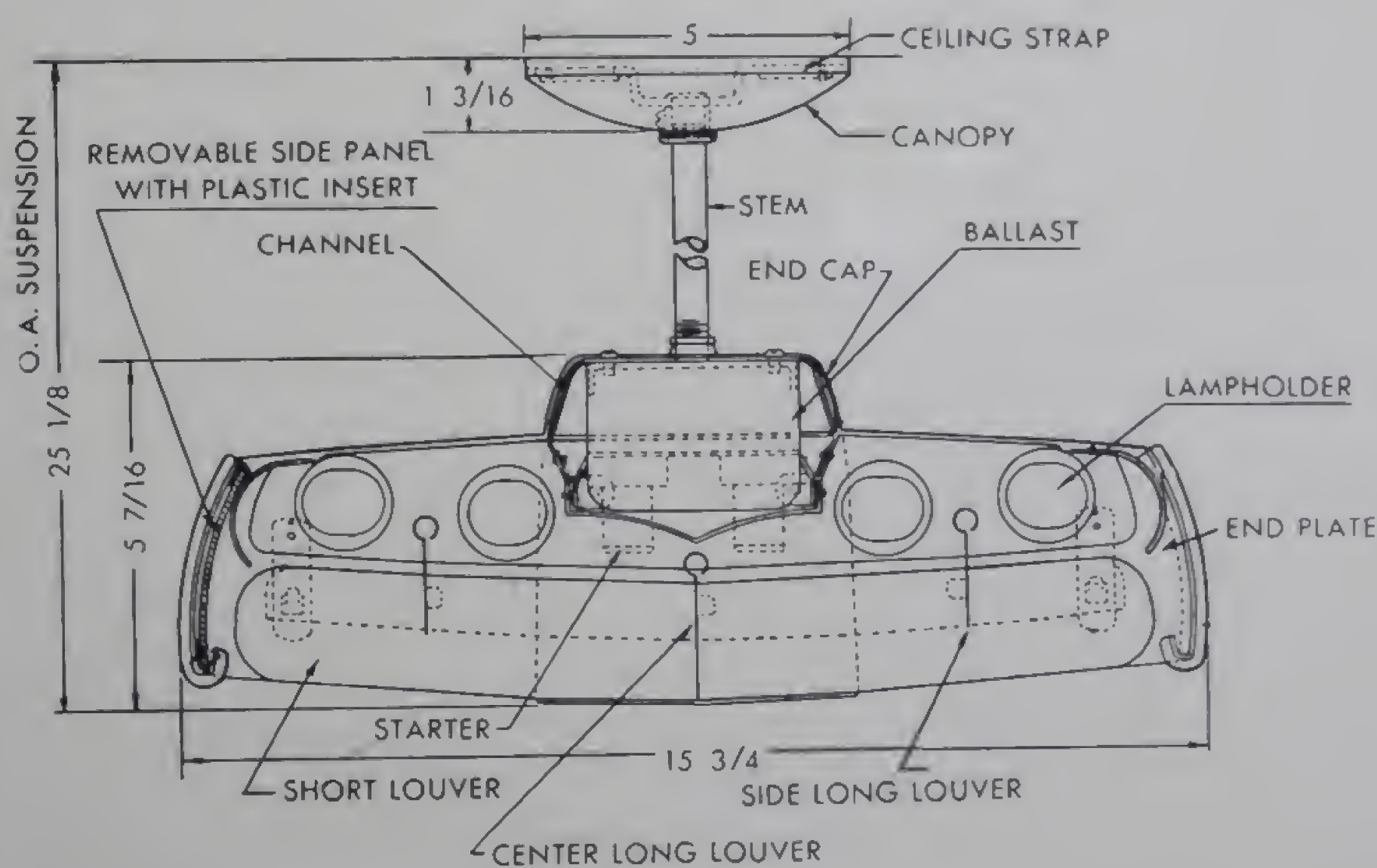
Stem Type



On-Ceiling Type

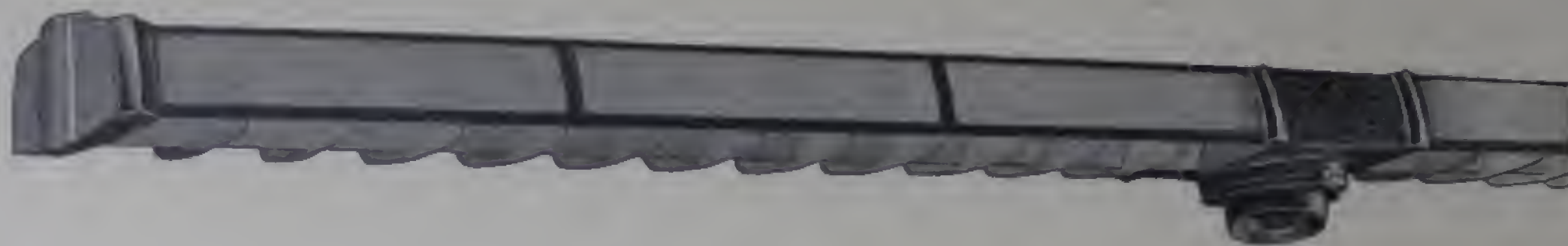


Distribution Curve



Cross Section of Stem Type

GENERAL ELECTRIC "GRENADIER II SPOT"

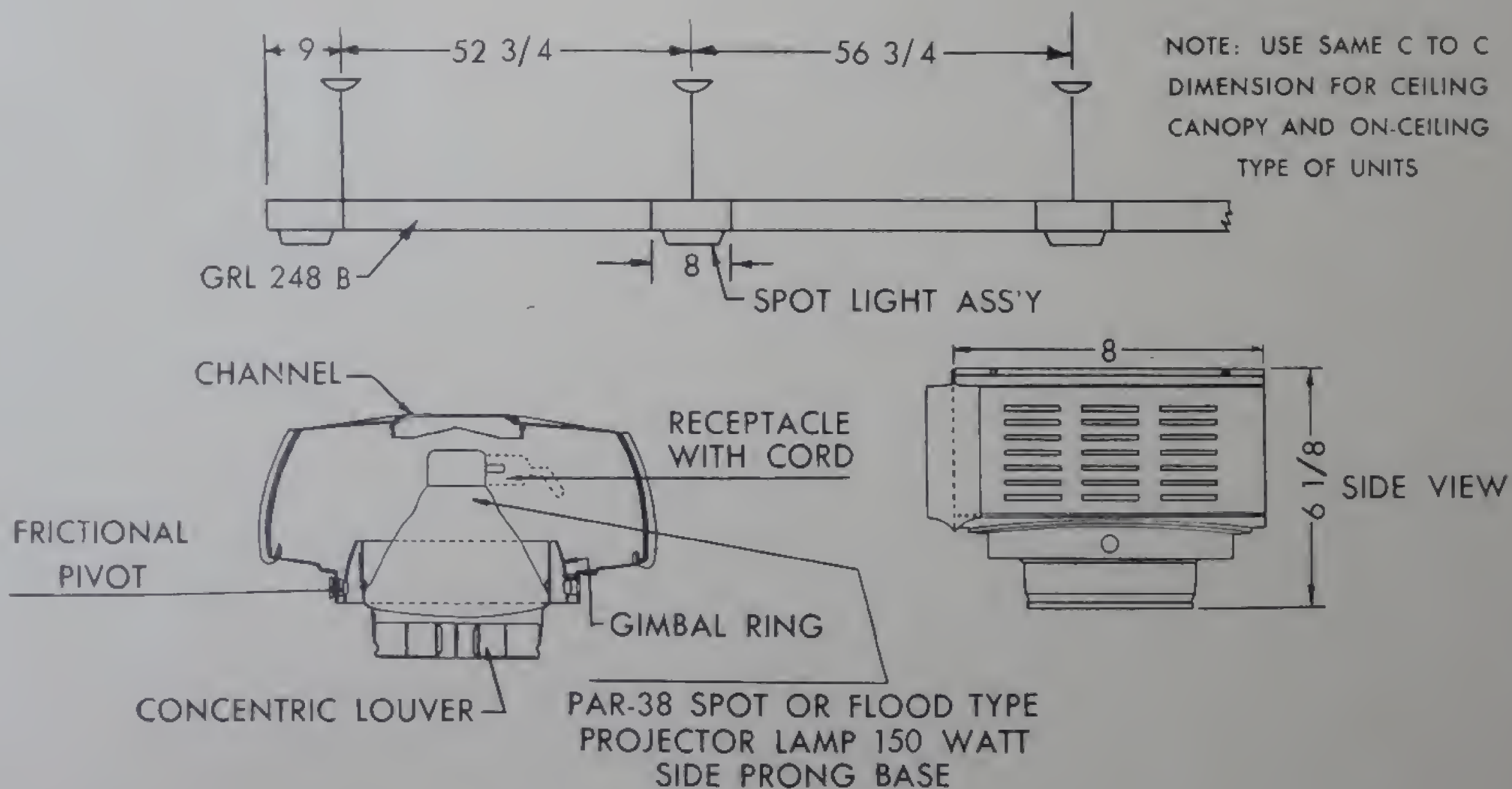


On-Ceiling Type Grenadier II With GR-1150 Installed

The Grenadier II equipped with spotlight has been developed for practical use in stores, in order to provide regular lighting and "spot" lighting from a single fixture. The "spot", which takes a 150 W. PAR-38 lamp with side prong base, is inserted in

gimbals which permit a 35° adjustment in any direction. The lamp has 45° shielding. The louvers are finished in jet black to eliminate distracting bright spots, and the body is finished in the exclusive Grenadier metallic satin.

Cat. No.	Price Each	Lamp Watts	Description	Std. Susp.	Ship. Wt.
GR-1150	\$11.70	150	Grenadier II Spot less lamp	4 1/8"	5



Dimensions and Installation Details for GR-1150

GENERAL ELECTRIC "GRENADIER IV SPOT"

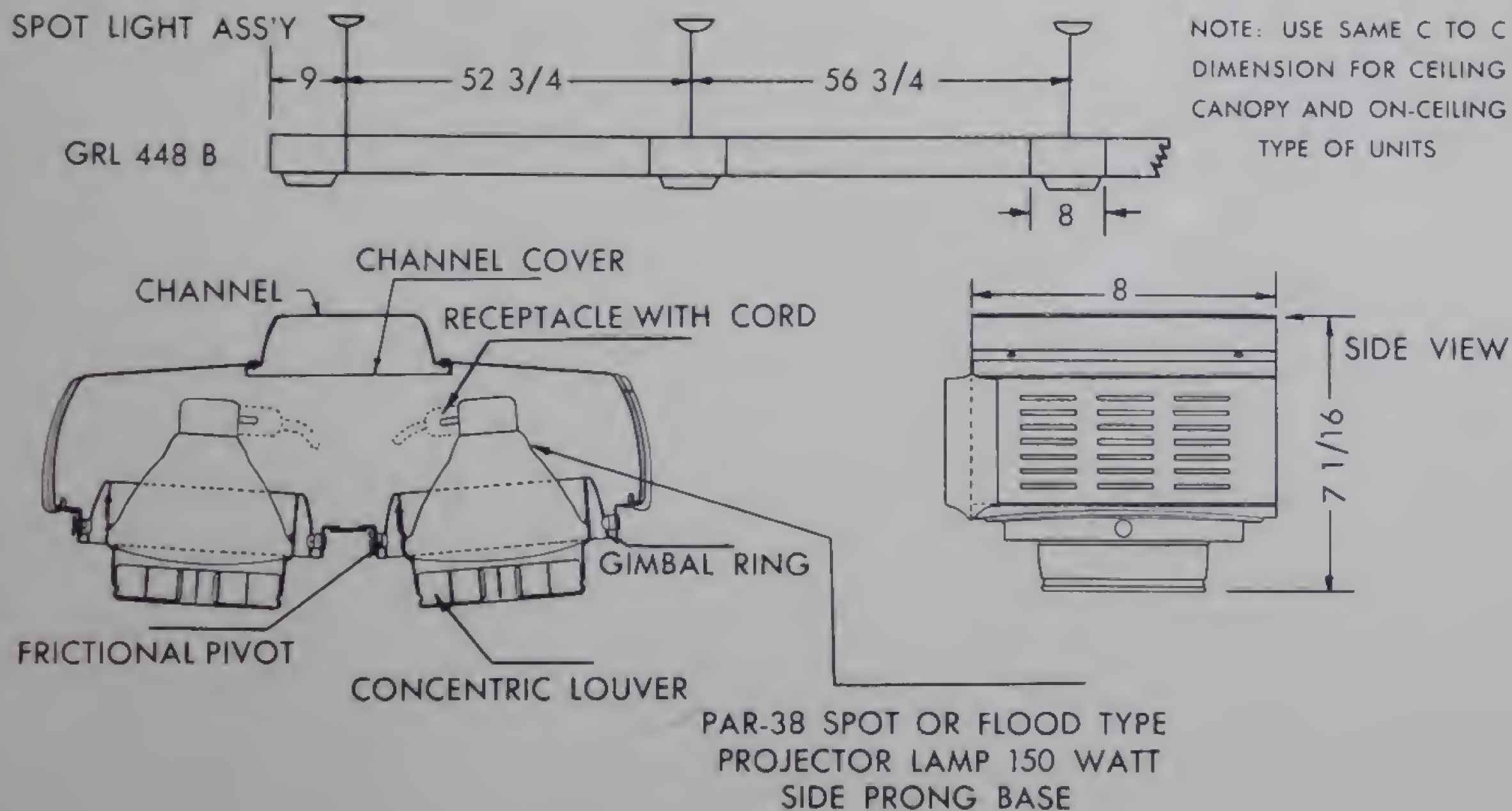


On-Ceiling Type Grenadier IV With GR-2150 Installed

Similar to the Grenadier II "Spot", except that each section is equipped with two side by side "spots" instead of one spot, this unit is also very desirable for stores since it supplies regular lighting and "spot" lighting from a single fixture. The two "spots", each with a 150 W. PAR-38 lamp with side prong

base, are inserted in gimbals permitting a 35° adjustment in any direction. The lamps have 45° shielding. The louvers are finished in jet black to eliminate distracting bright spots, and the body is finished in the exclusive Grenadier metallic satin to match the regular Grenadier units.

Cat. No.	Price Each	Lamp Watts	Description	Std. Susp.	Ship. Wt.
GR-2150	\$16.50	2-150	Grenadier IV Spot less lamp	5½"	8



Dimensions and Installation Details for GR-2150

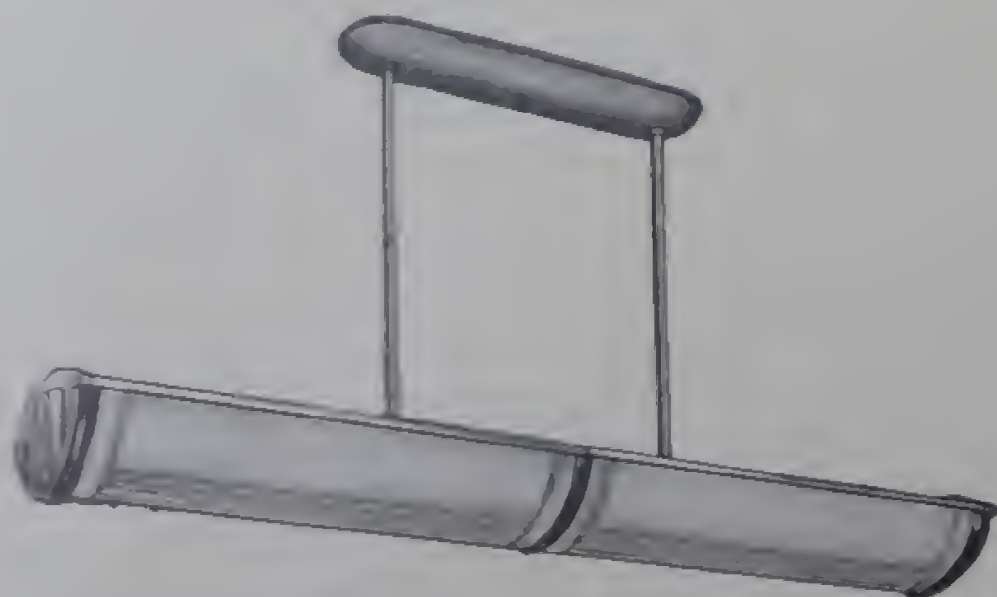
GENERAL ELECTRIC "STAR"



The Star — Continuous Mounting

Modern artificial lighting strives for two objectives: first, an even distribution of light intensity all over the room, and second, the elimination of spheres of brightness contrasted with intervening dark areas. The newest approach to this twofold objective is the Star, a new luminous indirect lighting unit.

The Star utilizes a molded translucent Plaskon reflector of such density that the lighted luminaire is of approximately the same brightness as the illuminated ceiling. When Star units are used in continuous runs, spaced in accordance with General Electric engineering specifications, an evenly lighted ceiling is achieved which provides the sky-like effect of evenly distributed light, with no deep shadows or sharp contrasts and without distracting glare from the light source.



The Star — Single Unit

Description of the Star

Each 4' Star section utilizes two 40 watt fluorescent lamps which are accessible from the top of the reflector. The molded reflectors and end caps are made of Plaskon, a plastic compound which is light in weight, non-electrostatic, non-shatterable, uniform in appearance and will not support combustion. All visible metal parts are finished in satin aluminum. The reflectors are held in place by illuminated satin aluminum supporting bands, and are easily slid in and out of place for maintenance purposes without disassembly of the unit. Fixtures are supplied wired, complete with FS-40 Watch Dog starters and approved tulamp high power factor ballasts. Overall suspension to bottom of reflector, 24 inches. Available for 60 cycle 110-125 volt operation only.

The Single Unit

Small rooms and corridors often can be adequately illuminated with single units. These units are 4' long and are identical with the 4' sections used in continuous runs except that single unit installations are equipped with twin stem suspension. The appearance of the single unit matches those which are used in continuous runs in every other detail.

GENERAL ELECTRIC "STAR"

ILLUMINATION PERFORMANCE

The Star is a fine piece of engineered lighting equipment but misapplication will result in dissatisfaction. Therefore, the same consideration should be given its installation as when any other important addition or investment is made to the office, drafting room, or school. The table below sets up the minimum requirements for fine lighting results. It should be followed.

Minimum Room Area: 12' x 24'
 Ceiling Height: 10' to 14'
 Ceiling Conditions: Clean or newly painted with reflection above 75%.
 Side Walls: Pastel colors of reflection not less than 50%.

Utilization Factors

This brings together all of the factors that affect the utilization of light. The figure obtained by reference to the table (for the type of fixtures used, the size and finish of the room in which these are to be installed) is the percentage of the lumens given out by the lamps that reaches the working plane. For example, a Utilization Factor of .40 means that 40 per cent of the light is useful in producing foot-candles and that 60 per cent is absorbed by the walls, ceiling and the fixture itself.

Distribution	Room Index	Ceiling 75%	
		Walls	
		50%	30%
MF = .70 ↑ 63½% — 71½% ↓	J	.15	.12
	I	.19	.16
	H	.22	.19
	G	.25	.22
	F	.28	.24
	E	.31	.27
	D	.34	.30
	C	.36	.33
	B	.40	.37
	A	.42	.39

ORDERING INFORMATION

Continuous Rows

Continuous runs of the Star are made up of bodies, reflectors, stem assemblies and end caps. When ordering continuous rows for an installation, specify the same number of body and reflector assemblies as there are units in each row. As many single stem assemblies as bodies, plus *one*, are required for each row. One set of end caps completes the row. For example, if there are eight Star units in a row, itemize order as follows:

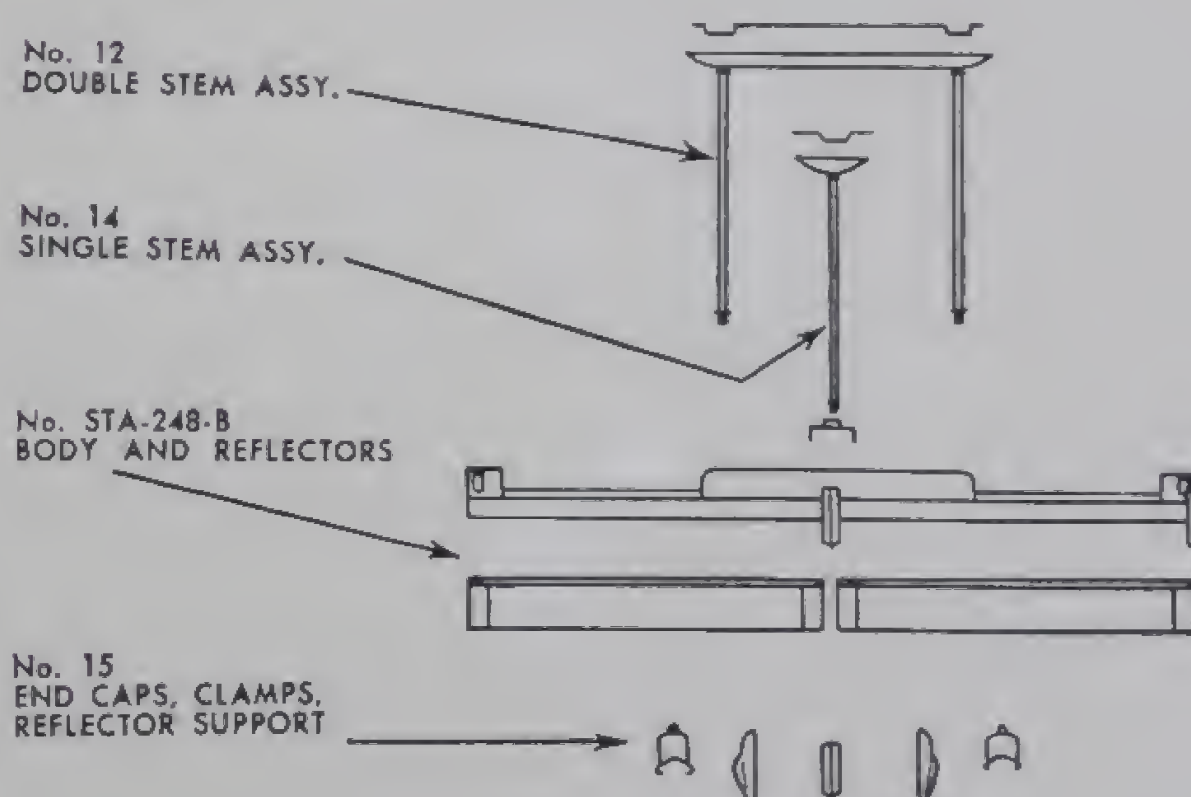
8—No. STA-248-B Body and reflector assemblies.

9—No. 14 Single stem assemblies.

1—No. 15 End cap assembly.

Single Units

The Star unit specified for single mounting should always be supplied with No. 12 double stem assembly in addition to the STA-248-B body and reflector assembly and the No. 15 end cap assembly.



Schematic Drawing Showing Component Parts of General Electric Star Luminaire

†Cat. No.	Price Each	Cycles	Lamps	Description	Std. Susp.	Ship. Wt.
STA-248-B	\$43.00	60	2-40	Body and reflector assembly.	4'	23
12	5.30	..	....	Double stem assembly.	20'	3
14	2.40	..	....	Single stem assembly.	20'	2
*15	9.75	..	....	End cap assembly.	...	2

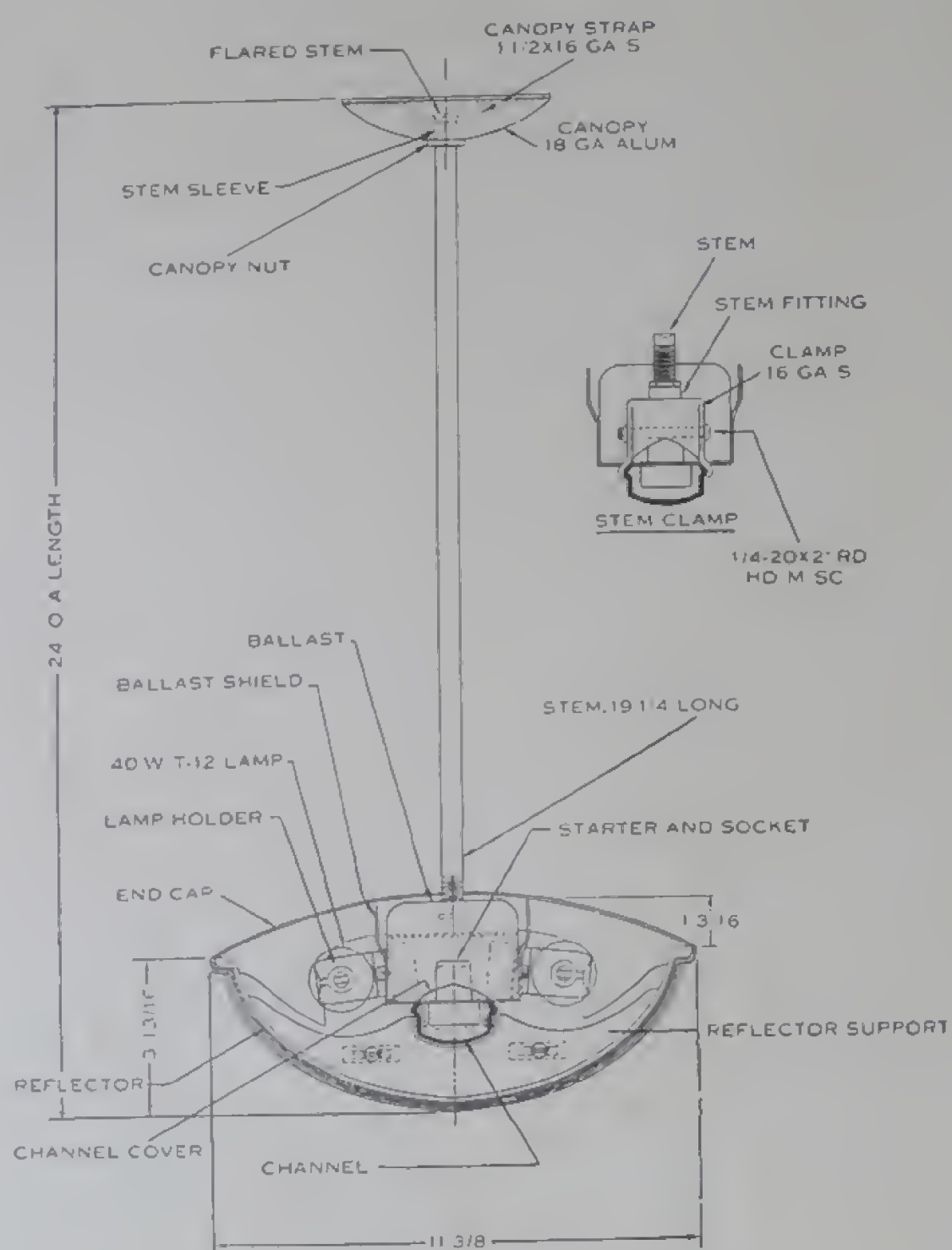
*Detailed instructions for installing the "Star" are packed with each No. 15 assembly.

†Catalogue number is for 110-125 volt operation.

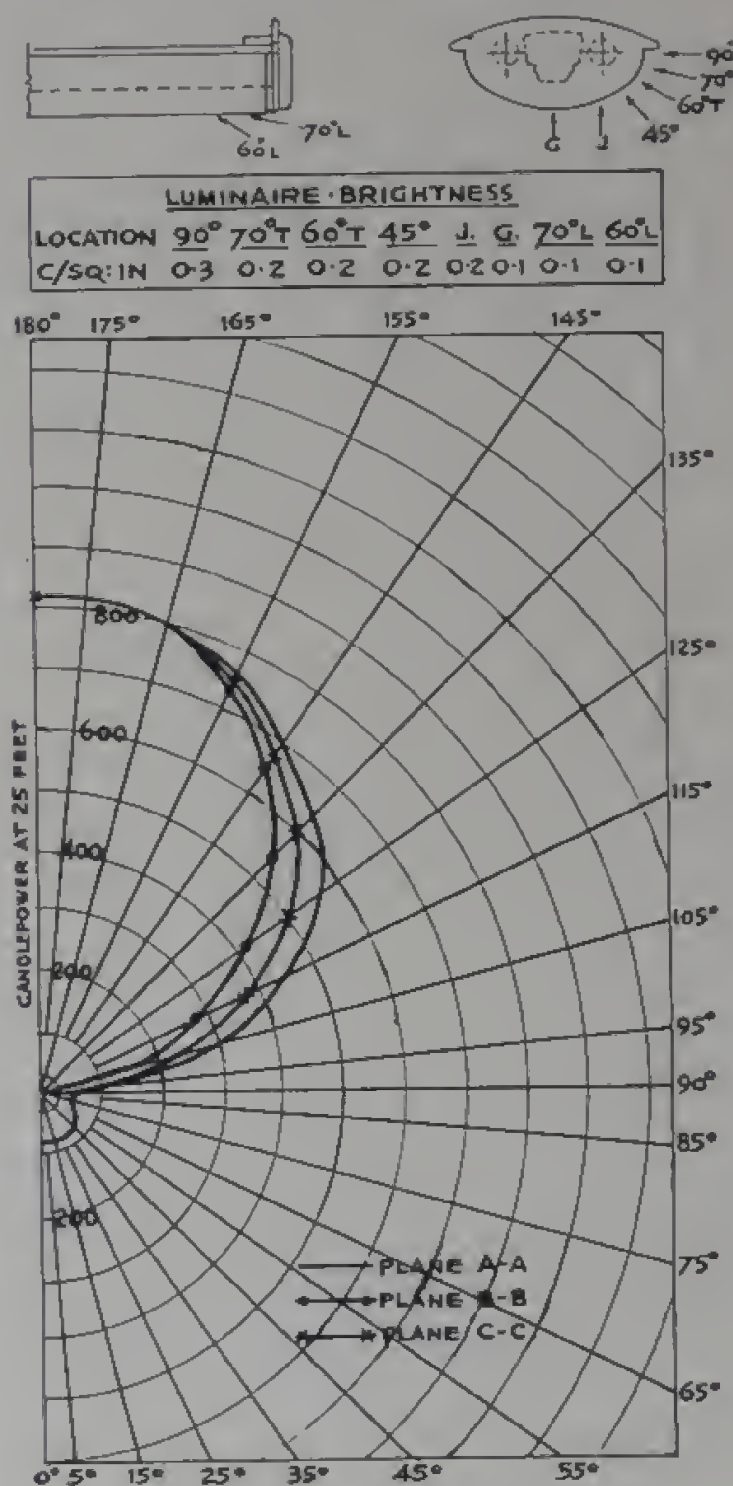
Lamps are not included in prices.

For additional length hanger, add \$1.00 per foot or fraction.

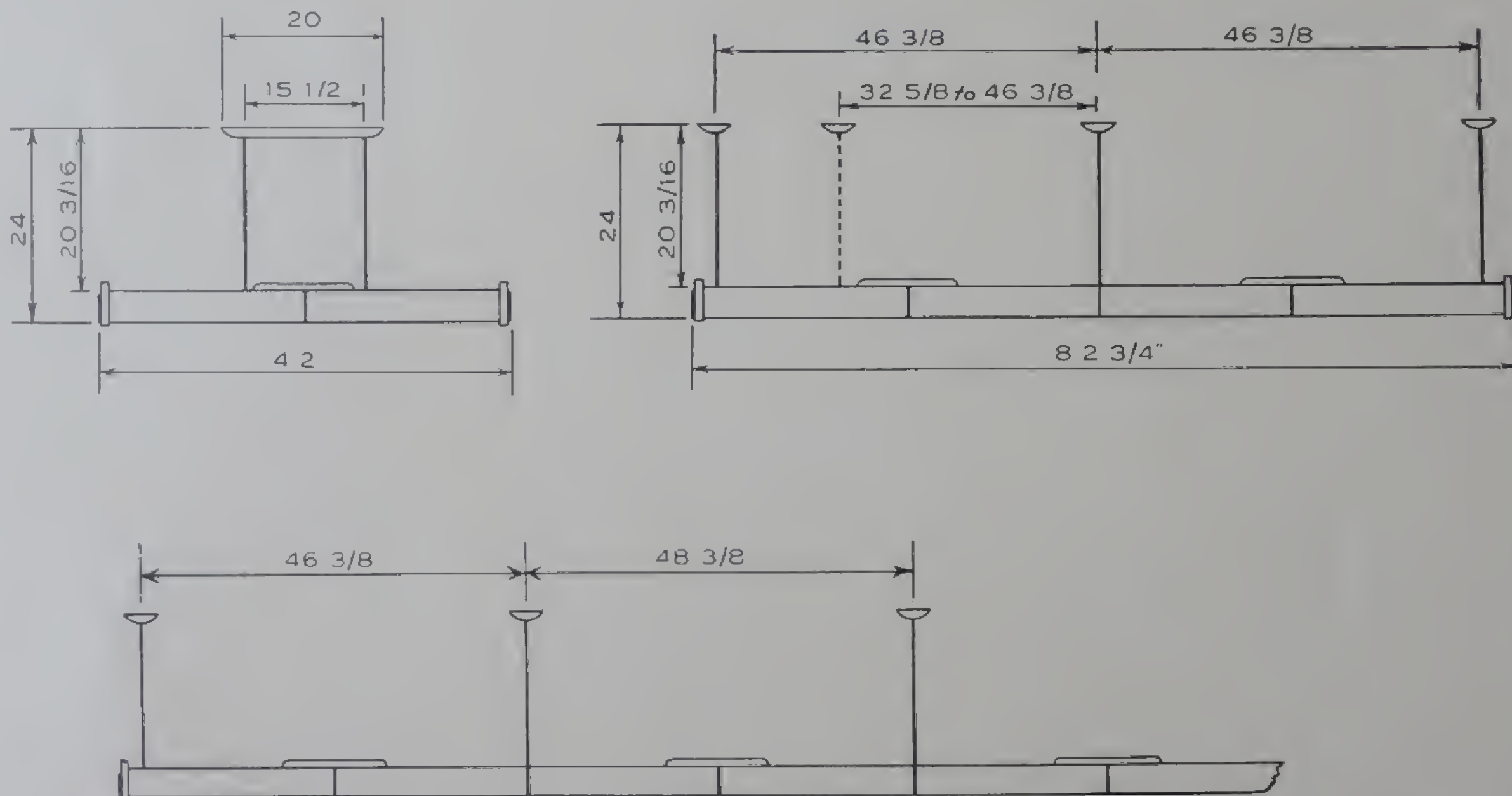
GENERAL ELECTRIC "STAR"



Cross Section



Distribution Curve



Installation Dimensions

GENERAL ELECTRIC "STAR"

Using Slimline Lamps

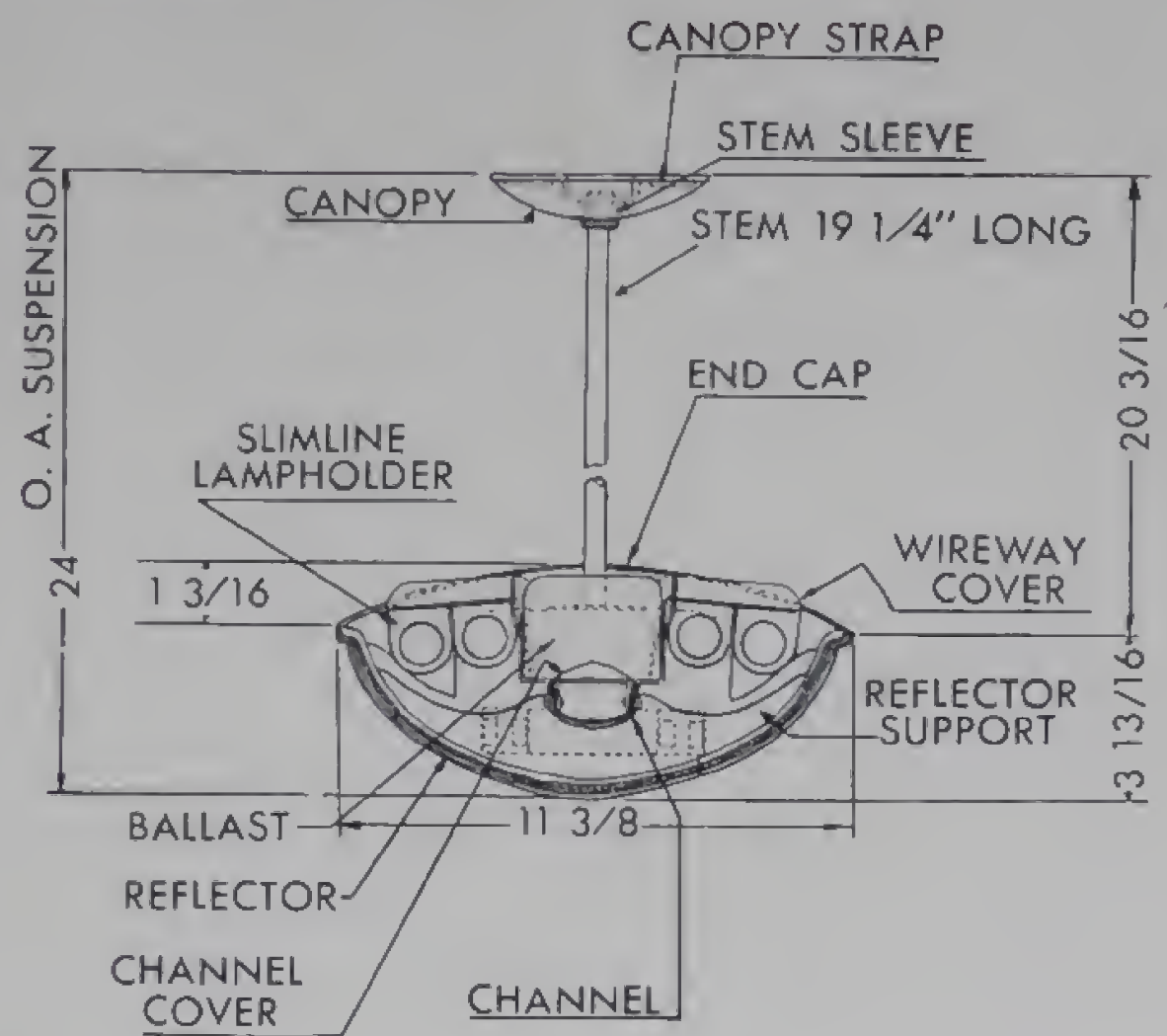


A view of a section of an 8-foot Star Unit without reflectors, showing utilization of Slimline lamps. The complete unit, when enclosed, is identical with the illustration on page 10.

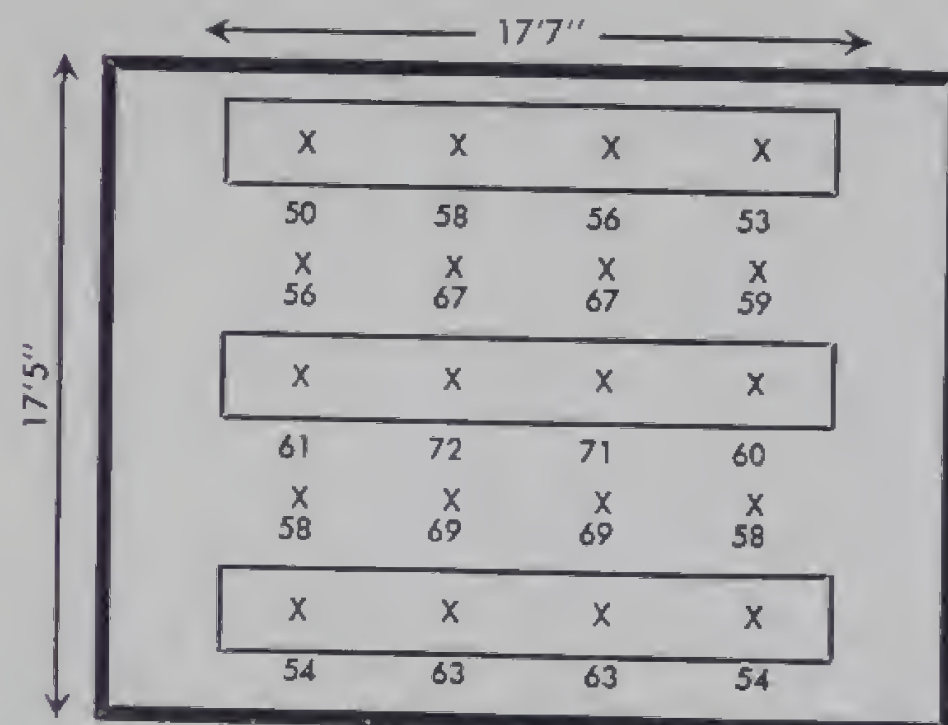
This latest development in the design of the Star, making it available for use with four 8' Slimline lamps, permits installations providing more lumens per foot of fixture. There are certain room conditions under which the use of the Star with Slimline lamps will result in fewer fixtures, spaced farther apart, with a satisfactory lighting result being achieved. Units may be ordered for use either with 200 MA. lamps or 300 MA. lamps (see catalog specifications below). Available for 60 cycle 110-125 volt operation only. No. 14 stems are spaced at approximately 4' intervals to insure adequate support.

Illumination Measurements

These measurements are based on an installation after 100 hours of use. Walls: light gray stipple over coral undercoat, .50 reflection factor. Ceiling: white, .87 reflection factor. Ceiling height: 11.8'. General Electric Stars with 96T8 Slimline lamps mounted 21" from ceiling to top of units. Three rows 16' long, 8 lamps per row. 117 volts on line at switch panel. 60.9 average footcandles on work plane 31" above floor.



Cross Section



X—Stations where footcandle readings were taken.

Purchase Information

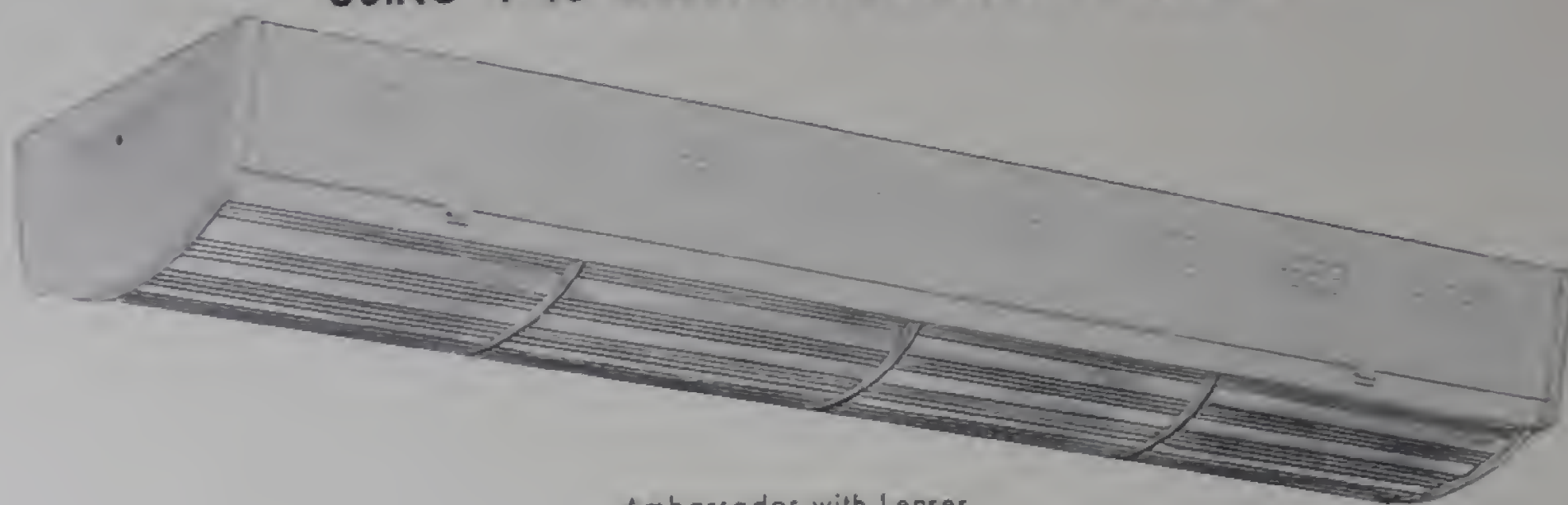
Each 8' section requires 3 No. 14 single stem assemblies and 1 No. 15 end cap assembly. For continuous runs, specify the required quantity of No. 14 stem assemblies spaced every 4' of fixture length and at ends of rows, together with 1 No. 15 end cap assembly for each row.

†Cat. No.	Price Each	Cycles	Lamp Current (M.A.)	Lamps	Description	Std Susp	Ship. Wt
STA-200-B	\$110.00	60	200	4-96T8	Bodies and reflectors only for 8' unit.	4"	55
STA-300-B	147.00	60	300	4-96T8	Bodies and reflectors only for 8' unit.	4"	60
14	2.40	..	.....	....	Single stem assembly.	20"	2
*15	4.75	..	.....	....	End cap assembly.	...	2

*Detailed instructions for installing the "Star" are packed with each No. 15 assembly.
†Catalogue numbers are for 110-125 volt operation.
Lamps are not included in prices.
For additional length hanger, add \$1.00 per foot or fraction.

GENERAL ELECTRIC "AMBASSADOR"

USING 4-40 WATT FLUORESCENT LAMPS



Ambassador with Lenses

The Ambassador provides evenly distributed, comfortable illumination which makes possible quicker and more accurate seeing in stores, schools and offices, resulting in more sales and happier customers, faster and more efficient work, and reduced fatigue. It is an exceptionally beautiful luminaire, designed to blend harmoniously with modern interiors.

The Ambassador is available with fresnel lenses, which provide excellent diffusion, or with a metal louver of unusual beauty. The louver provides 45° crosswise and 30° lengthwise shielding.

Construction

Dependable service is ensured by the use of heavy gauge metal, finished in hard baked white enamel. Lamp replacements can quickly and easily be made by means of the hinged door frame. Spring fasteners readily unfasten the door, or securely lock it in place. Housing is ventilated to ensure proper cooling of ballasts. All auxiliary equipment is mounted in the housing for ease of installation and maintenance. Luminaire is provided with six slotted holes and three knockouts for mounting on ceiling.

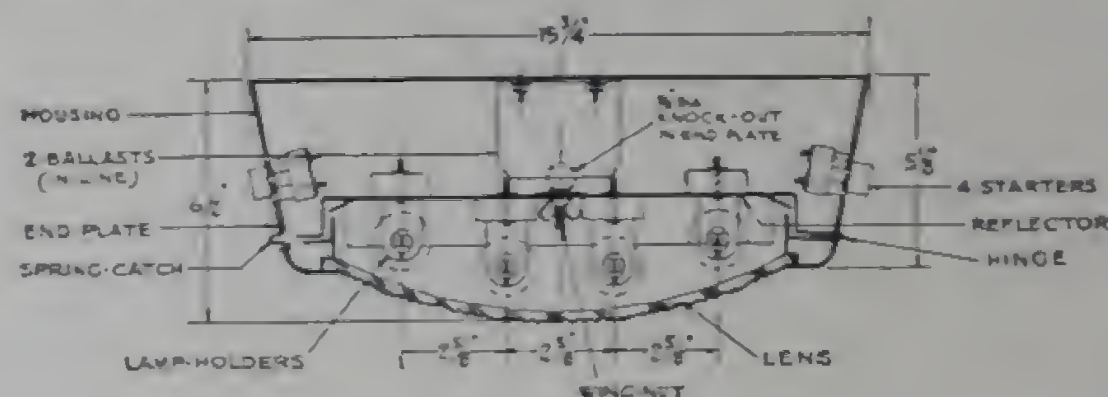
Continuous Mounting

To mount in continuous rows, remove knockouts

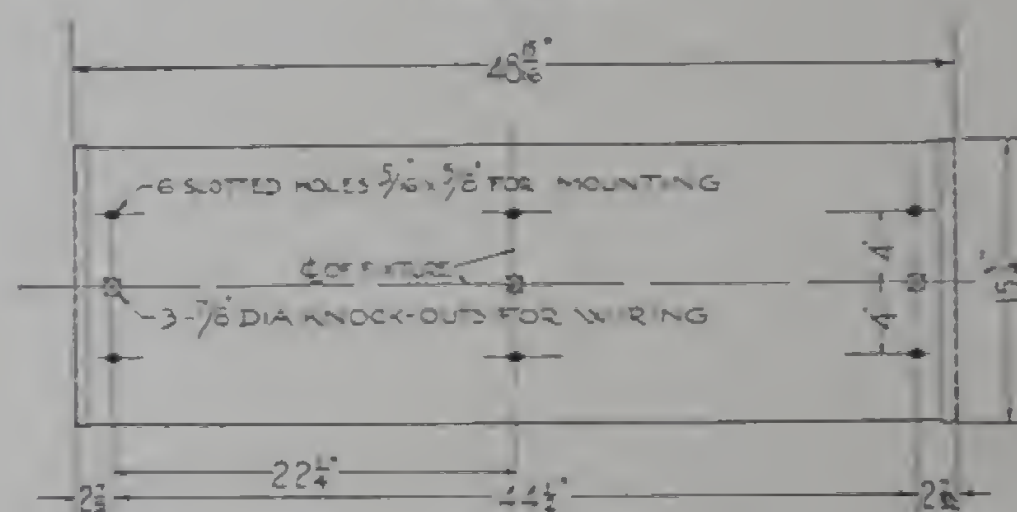
from end plates and fasten luminaires together by nipple and locknuts.

Auxiliary Equipment

Luminaire is supplied wired, complete with FS-40 Watch Dog starters and approved tulamp high power factor ballasts which reduce stroboscopic effects to a minimum.



Cross Section



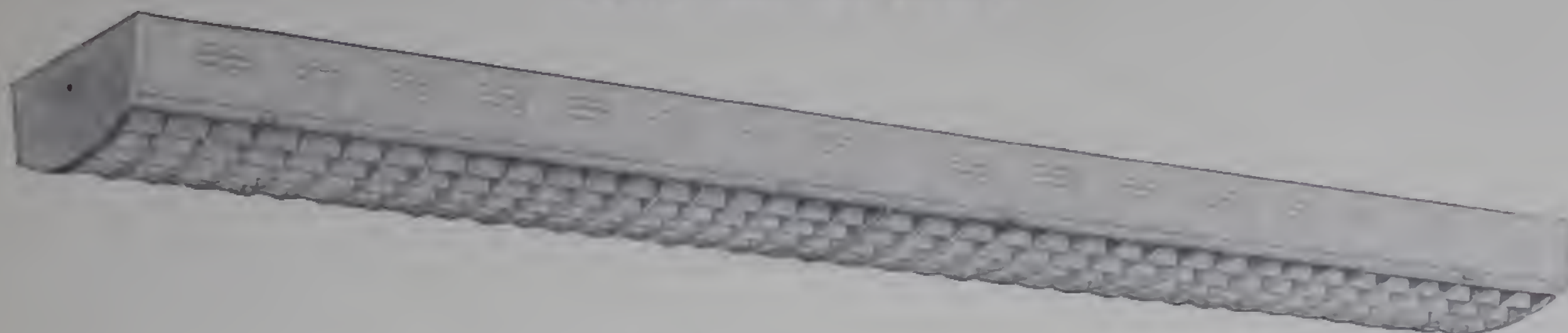
Plan Showing Mounting Holes

Cat. No.	Price Each	Cycles	Lamp Watts	Line Voltage	Approx. Watts Consumed	Dimensions (Inches)			Ship. Wt
						Length	Width	Depth	
WITH LENSES									
6410	\$67 00	60	4-40	110-125	194	48 ¹⁵ / ₁₆	15 ³ / ₄	6 ¹ / ₂	59
6413	76 50	60	4-40	110-125	216	48 ¹⁵ / ₁₆	15 ³ / ₄	6 ¹ / ₂	67
6415	82 00	25	4-40	110-125	212	48 ¹⁵ / ₁₆	15 ³ / ₄	6 ¹ / ₂	72
6476	67 00	66 ² / ₃	4-40	110-125	198	48 ¹⁵ / ₁₆	15 ³ / ₄	6 ¹ / ₂	59
WITH LOUVER									
6450	67 00	60	4-40	110-125	194	48 ¹⁵ / ₁₆	15 ³ / ₄	6 ¹ / ₂	47
6453	76 50	60	4-40	110-125	216	48 ¹⁵ / ₁₆	15 ³ / ₄	6 ¹ / ₂	55
6455	82 00	25	4-40	110-125	212	48 ¹⁵ / ₁₆	15 ³ / ₄	6 ¹ / ₂	60
6478	67 00	66 ² / ₃	4-40	110-125	198	48 ¹⁵ / ₁₆	15 ³ / ₄	6 ¹ / ₂	47

*Designed with Instant Start ballasts (no starters required). Must be used with Instant Start lamps.
Lamps are not included in prices.

GENERAL ELECTRIC "AMBASSADOR"

USING SLIMLINE LAMPS



Slimline Ambassador with Louver

A well designed lighting installation for offices, schools and stores should provide suitable intensities of uniform, glare-free illumination, without contrasting areas of brightness. Such an installation will promote better working conditions in offices and schools, with more accurate work and fewer errors. A properly lighted store invites shoppers to come in. It makes merchandise easier to see and appraise, easier to buy.

The Ambassador for use with slimline lamps makes possible these benefits by providing adequate quantities of cool illumination at high efficiencies. This luminaire is available with fresnel lenses, which provide excellent diffusion, or with a metal louver which provides 45° crosswise and 30° lengthwise shielding.

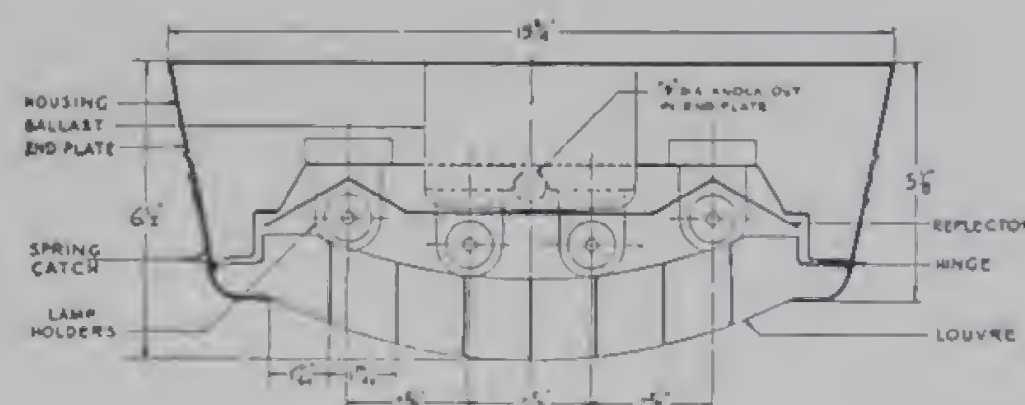
The Slimline Ambassador accommodates four 96 inch slimline lamps, and may be obtained for 200 or 300 milliamperere operation on 60 cycles, and for 200 milliamperere operation on 25 cycles.

Slimline lamps are highly efficient in operation, and do not require starters, thus making possible instant starting. In continuous row installations, these long light sources reduce the number of dark areas between lamps. Maintenance is simplified, since fewer lamps are required, and spring-type lamp-holders provide for easy lamp insertion and removal.

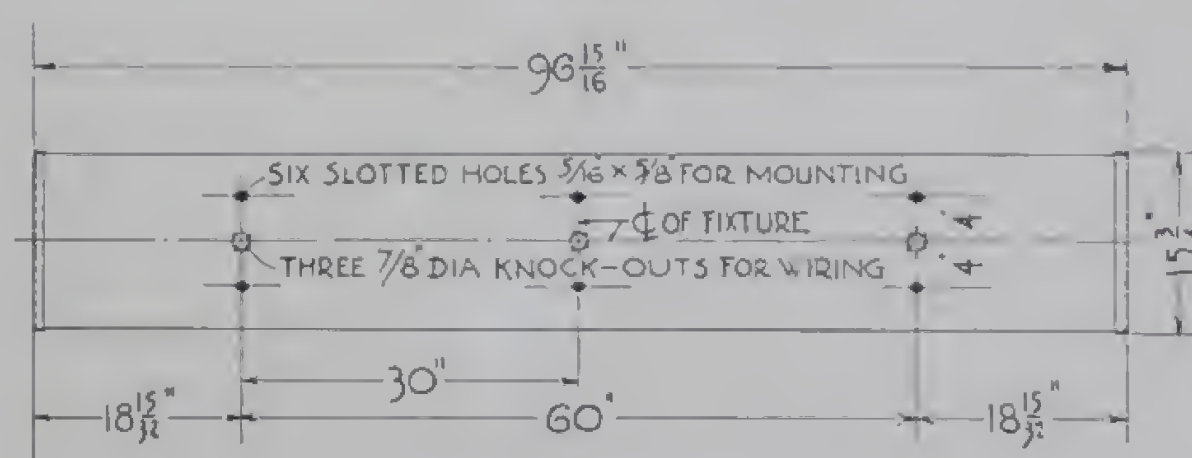
Construction

Dependable service is ensured by the use of heavy gauge metal, finished in hard baked white enamel.

Lamp replacements can quickly and easily be made by means of the hinged door frames. Spring fasteners readily unfasten the doors, or securely lock them in place. Luminaire is provided with six slotted holes and three knockouts for mounting on ceiling. To mount in continuous rows, remove knockouts from end plates and fasten luminaires together by nipple and locknuts. Luminaire is supplied wired, complete with approved 1/2" lamp high power factor ballasts.



Cross Section



Plan Showing Mounting Holes

Cat. No.	Price Each	Cycles	Lamp Current (M.A.)	Lamps	Line Voltage	Approx. Watts Consumed	Dimensions (Inches)			Ship. Wt
							Length	Width	Depth	
WITH LENSES										
8120	\$140.00	60	200	4-96T8	110-125	260	96 ¹⁵ / ₁₆	15 ³ / ₄	6 ¹ / ₂	126
8130	152.00	60	300	4-96T8	110-125	348	96 ¹⁵ / ₁₆	15 ³ / ₄	6 ¹ / ₂	134
8125	170.00	25	200	4-96T8	110-125	284	96 ¹⁵ / ₁₆	15 ³ / ₄	6 ¹ / ₂	148
WITH LOUVER										
8220	140.00	60	200	4-96T8	110-125	260	96 ¹⁵ / ₁₆	15 ³ / ₄	6 ¹ / ₂	102
8230	152.00	60	300	4-96T8	110-125	348	96 ¹⁵ / ₁₆	15 ³ / ₄	6 ¹ / ₂	110
8225	170.00	25	200	4-96T8	110-125	284	96 ¹⁵ / ₁₆	15 ³ / ₄	6 ¹ / ₂	124

Lamps are not included in prices.

GENERAL ELECTRIC TROFFERS



Continuous Row Installation of Open Type Troffers

General Electric Troffers provide good quality illumination for easy, comfortable seeing at reasonable cost. They may be installed as individual units, or bolted together through housing ends to form continuous rows or patterns of light.

The open type troffer, which has a shielding angle of 17° crosswise, is designed for use in locations where lamp shielding is not considered necessary. This troffer is provided with hinges and fasteners to accommodate hinged louver or glass panel assemblies which may be installed initially or added at any future time.

Reflector is readily detached from housing by quick-release cam-type fasteners. When the reflector is removed, ballast and wiring are exposed for ease of maintenance and installation. Starters

located between lamps are readily accessible without removing lamps. Reflector and housing are made of heavy-gauge metal, finished in white baked enamel. Troffers accommodate two 40 watt lamps, and are supplied wired, complete with FS-40 Watch Dog starters and approved tulamp high power factor ballasts.

Purchase Information

To order troffers with louver or glass panel assembly, specify the required open housing assembly as a separate item, together with the louver or glass panel assembly. One No. 692 end plate assembly will be required for each row of troffers, or for each individually mounted troffer.

Cat. No.	Price Each	Cycles	Lamp Watts	Description	Line Voltage	Approx. Watts Consumed	Dimensions (Inches)			Ship. Wt.
							Length	Width	Depth	
6720	\$29.00	60	2-40	Open housing assembly	110-125	97	48	12	7 1/4	27
6723	33.75	60	2-40	Open housing assembly	110-125	108	48	12	7 1/4	31
6725	36.50	25	2-40	Open housing assembly	110-125	106	48	12	7 1/4	35
6762	29.00	66 2/3	2-40	Open housing assembly	110-125	99	48	12	7 1/4	28
690	8.00	..	....	Hinged louver assembly	.....	..	..	..	...	6
691	8.00	..	....	Hinged glass panel assembly	.....	..	..	..	...	12
692	1.35	..	....	End plate assembly	.....	..	..	..	...	3

*Equipped with Instant Start ballast (no starters required). Must be used with Instant Start lamps. Lamps are not included in prices.

GENERAL ELECTRIC TROFFERS



HINGED LOUVER ASSEMBLY



HINGED GLASS PANEL ASSEMBLY

The use of this louver assembly makes possible high intensities of illumination with low brightness contrasts between the ceiling and the troffer, when viewed at normal angles. The louver provides 45° crosswise and 30° lengthwise shielding.

The assembly swings from the housing on two concealed safety-type hinges, and closes securely by means of two quick-release cam-type fasteners. Although readily removable from the housing without tools, it cannot become accidentally detached. Made of heavy-gauge metal, finished in white baked enamel.

Excellent lamp shielding and a pleasing appearance is provided by this glass panel assembly. The single panel of Alba-lite glass is homogeneous in composition, with a permanent, uniform color and easy-to-clean surface.

The panel is mounted in a rigid, steel frame and held securely in place by bronze spring clips. The glass panel assembly uses the same method of hinging and fastening to the housing as the louver assembly. To prevent light leak, two brackets for bolting to the housing ends are provided. Frame is finished in white baked enamel.

ILLUMINATION PERFORMANCE

2-40 Watt Troffer with Louver Assembly or Glass Panel Assembly

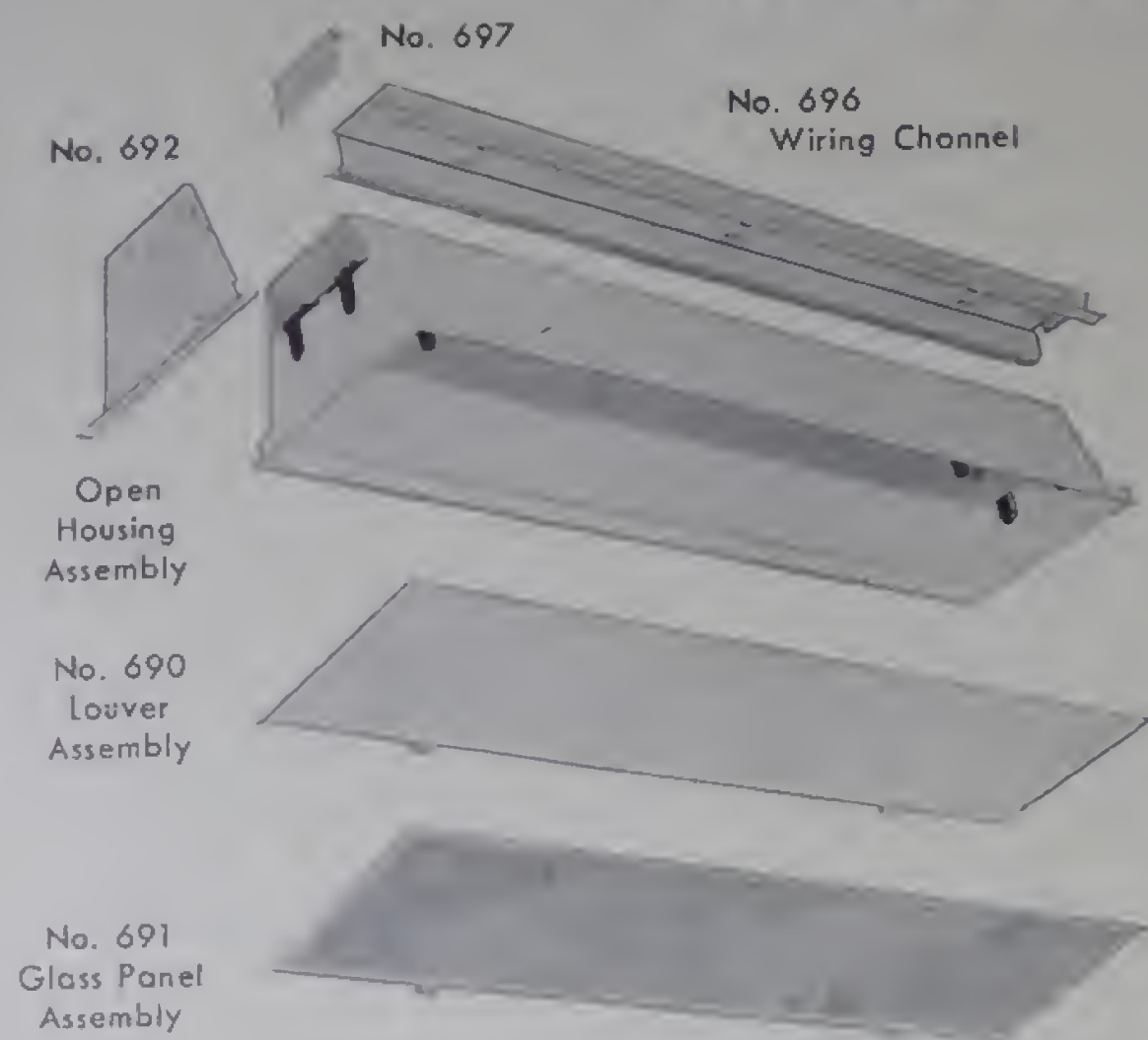
Ceiling Height—Feet		9-11½				12-13½				14-16½			
Spacing of Rows—Ft.		5	6	7	8	5	6	7	8	5	6	7	8
Area per Unit—Sq. Ft.		20	24	28	32	20	24	28	32	20	24	28	32
Width	Length	FOOT-CANDLES											
12—20	15—20	59—68	49—56	42—48	37—42	49—62	40—51	35—44	30—39	47—56	39—46	34—40	29—35
	20—40	62—70	51—59	44—50	39—44	51—66	43—55	37—47	32—41	49—62	40—51	35—44	30—39
	40—60	64—72	53—60	46—51	40—45	56—68	47—56	40—48	35—42	50—66	42—55	36—47	31—41
	60—up	70—75	58—63	50—54	44—47	62—69	51—58	44—49	39—43	56—68	46—56	40—48	35—42
20—40	30—45	69—78	58—66	49—56	43—49	64—72	53—60	46—51	40—45	59—69	49—58	42—49	37—43
	45—60	72—79	60—66	51—57	45—50	67—75	56—63	48—54	42—47	65—71	54—59	46—50	40—44
	60—90	74—80	61—67	52—57	46—50	68—78	57—65	49—56	43—49	66—75	55—63	47—54	41—47
	90—up	75—81	63—67	54—58	47—51	70—79	58—66	50—57	44—50	69—78	58—65	49—56	43—49
40—60	50—75	79—82	66—68	57—58	50—51	72—78	60—66	51—56	45—49	69—78	58—65	49—56	43—49
	75—90	80—82	66—68	57—59	50—51	78—79	65—66	56—57	49—50	72—78	60—65	51—56	45—49
	90—140	80—83	67—69	57—59	50—52	78—80	66—67	56—57	49—50	76—79	64—66	55—56	48—49
	140—up	81—83	67—69	58—59	51—52	79—81	66—67	57—58	50—51	78—79	65—66	56—57	49—50

To use the table above, locate the required foot-candle value opposite the room dimensions and under the ceiling height. Above this foot-candle figure will be found the area per two-lamp unit and the spacing of rows for a continuous row installation.

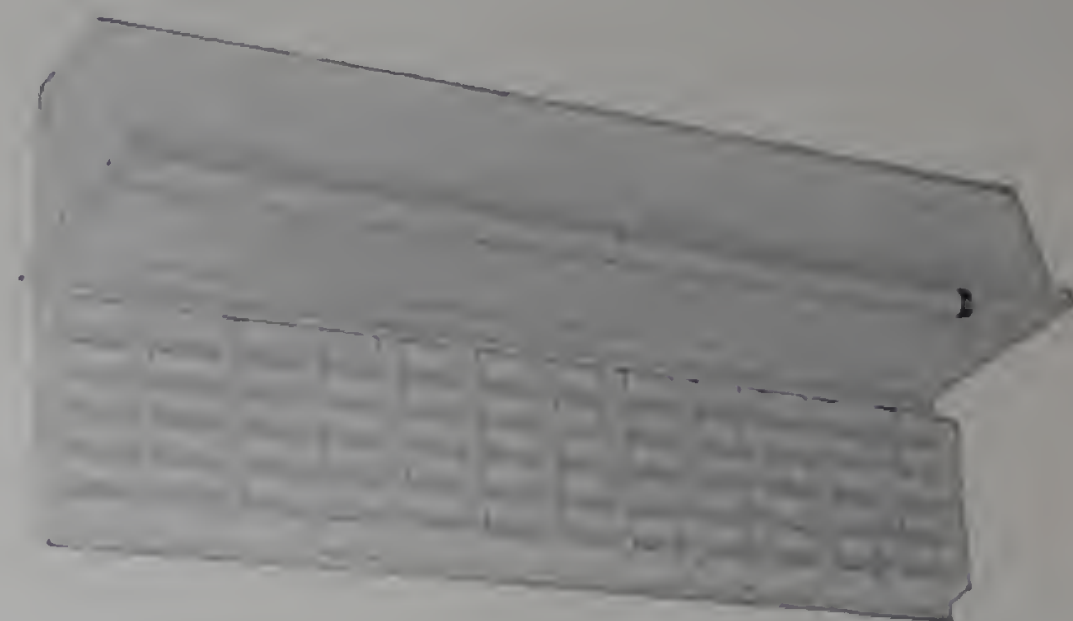
Figures are based on the use of two 60 cycle 4500°K white lamps per lighting unit. For 60 cycle 3500°K white lamps multiply values by 1.09. For 60 cycle 6500°K Daylight lamps multiply values by .91. For 25 cycle lamps multiply 60 cycle values by .95.

The tables assume light coloured surroundings, 75% or better reflection factor of ceiling and 50% for walls. For 30% walls reduce average foot-candle values by 5 per cent except in very large rooms, where the reduction is 3%. Foot-candles are calculated "in-service" values using a maintenance factor of .70 which allows 30 per cent for depreciation due to dust collection and ageing of lamps.

GENERAL ELECTRIC TROFFERS

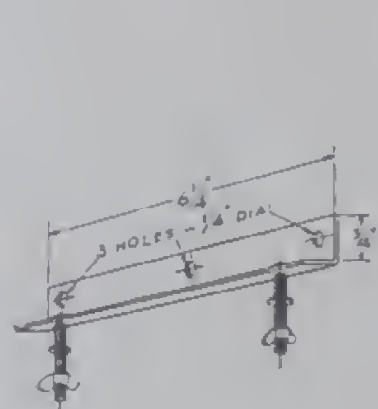
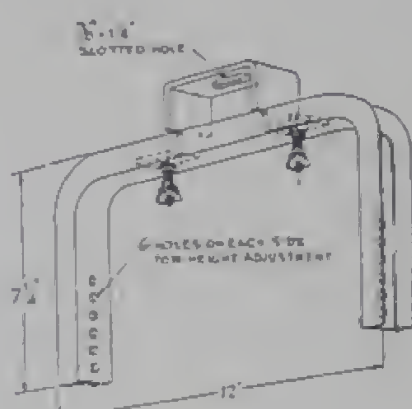
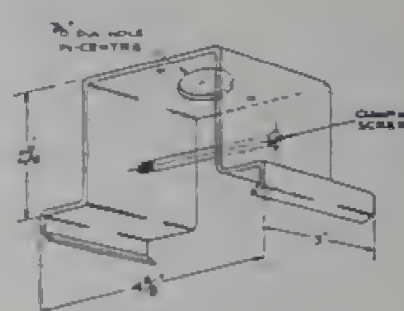
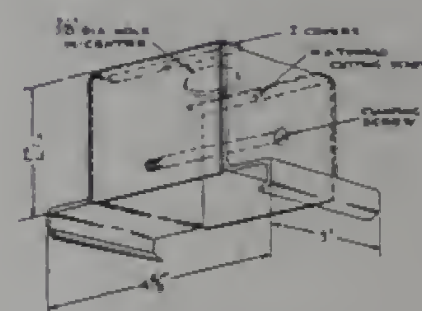


Component Parts of Troffer and Wiring Channel



Hinged Louver Assembly in Open Position

MOUNTING ACCESSORIES

No. 694
Chain Suspension BracketNo. 695
Mounting HangerNo. 5200
Hanger ClampNo. 5201
Junction Box Clamp

No. 694 Chain Suspension Bracket

For use when troffer is supported from structural ceiling by wire or chain. Threaded studs are supplied with wing-nuts, to enable troffer to be easily levelled flush with ceiling-line.

No. 695 Mounting Hanger

Can be bolted, through adjustment holes in legs, directly to wood, angle iron, or channel iron furring. For certain types of ceiling construction special suspension clamps or straps can be supplied at extra cost; further information on request. Provided with hole for $\frac{1}{2}$ inch conduit.

No. 696 Wiring Channel

Provides a wire-way for through circuit wiring, when it is not desirable to bring wiring through ballast housing. Supplied with four weld-bolts and wing-nuts for supporting troffer. Shoulder accommodates sliding hanger clamp which can be located at any point. Channel is equipped with brackets for bolting together in continuous runs.

No. 697 Wiring Channel End Plate Assembly

Consists of two end plates for closing off No. 696 wiring channel at ends of runs.

No. 5200 Hanger Clamp

For use with No. 696 Wiring Channel. Clamp fastens securely to shoulder of channel by turning down one bolt. Supplied with hole for $\frac{1}{2}$ inch conduit.

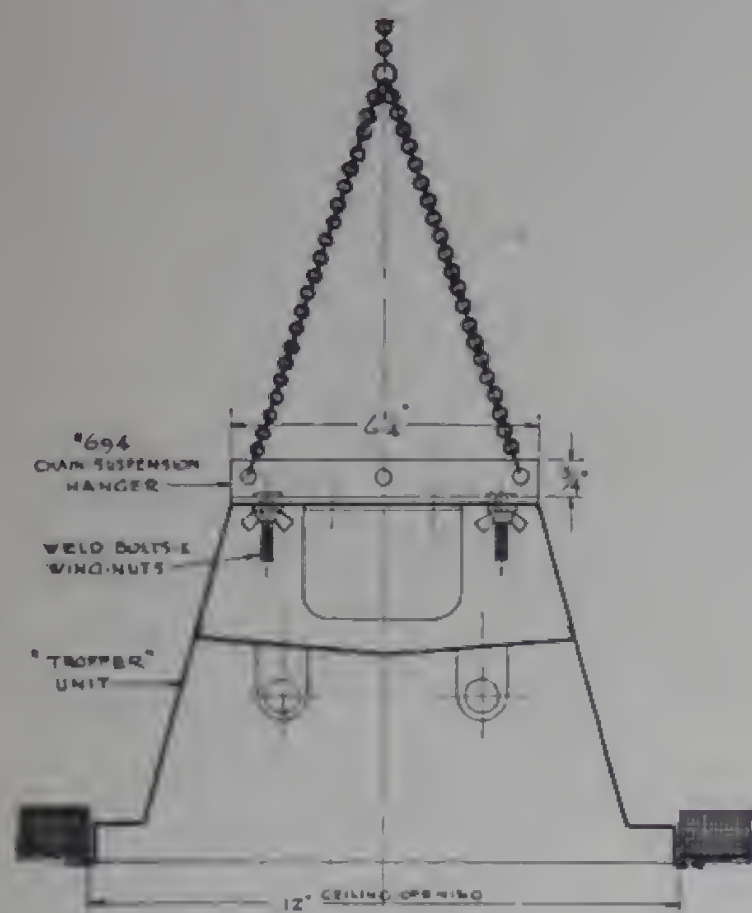
No. 5201 Junction Box Clamp

Similar to No. 5200, except that it is supplied with enclosing side plates for use with conduit containing wiring.

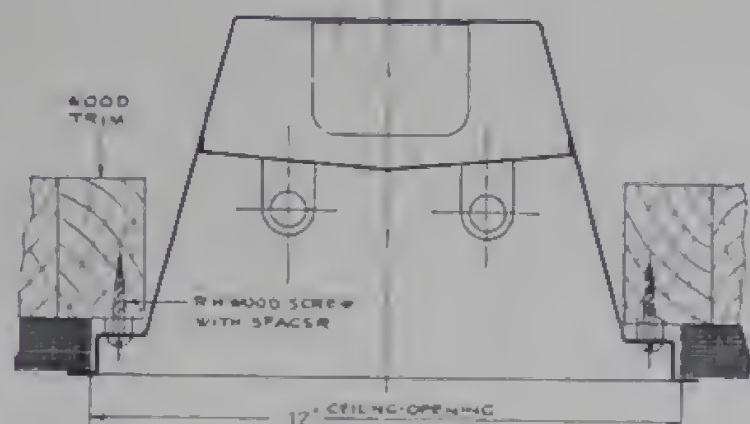
Cat. No.	Price Each	Description	Ship. Wt.
694	\$0.35	Chain suspension bracket.....	1
695	2.00	Mounting hanger.....	3
696	4.70	Wiring channel.....	7
697	.65	Wiring channel end plate assembly	1
5200	1.00	Hanger clamp.....	1
5201	1.25	Junction box clamp.....	1

GENERAL ELECTRIC TROFFERS

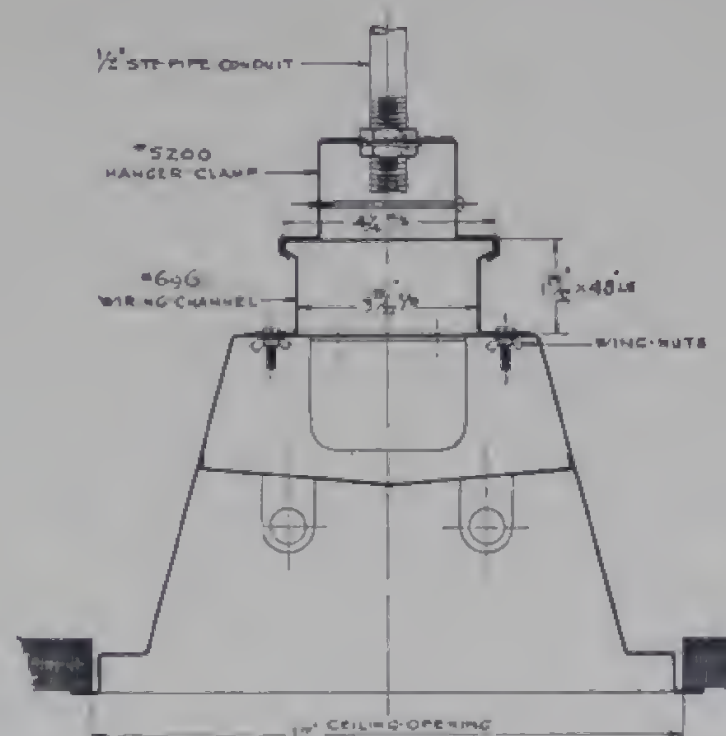
INSTALLATION DATA



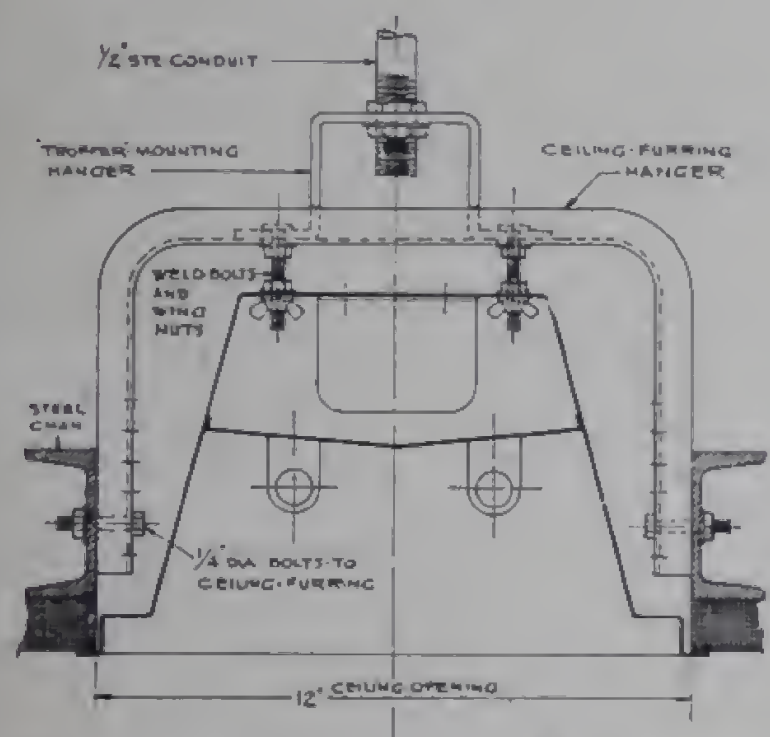
Troffer supported from structural ceiling by means of chain or wire fastened to No. 694 Chain Suspension Bracket.



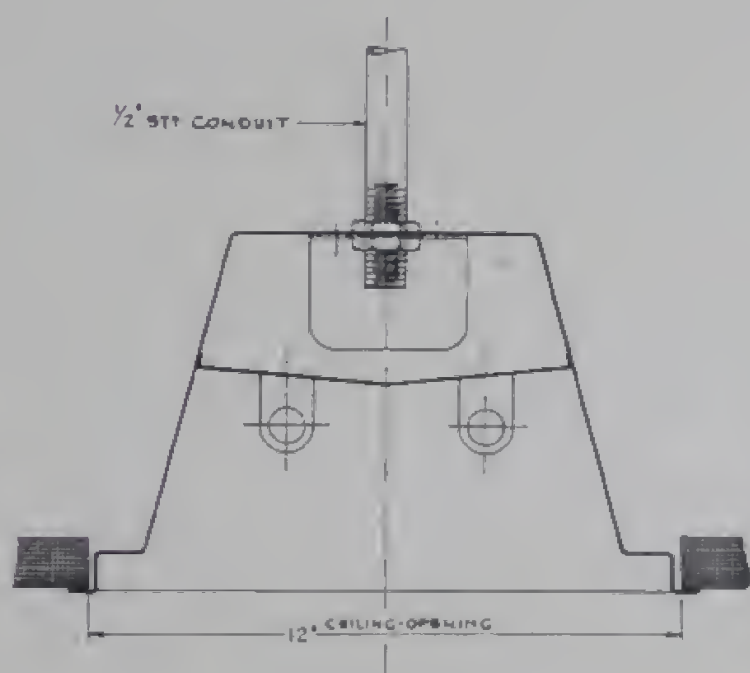
Troffer supported from wood furring. Shoulder of troffer is provided with two $\frac{1}{4}$ inch knockouts on each side for securing troffer to furring.



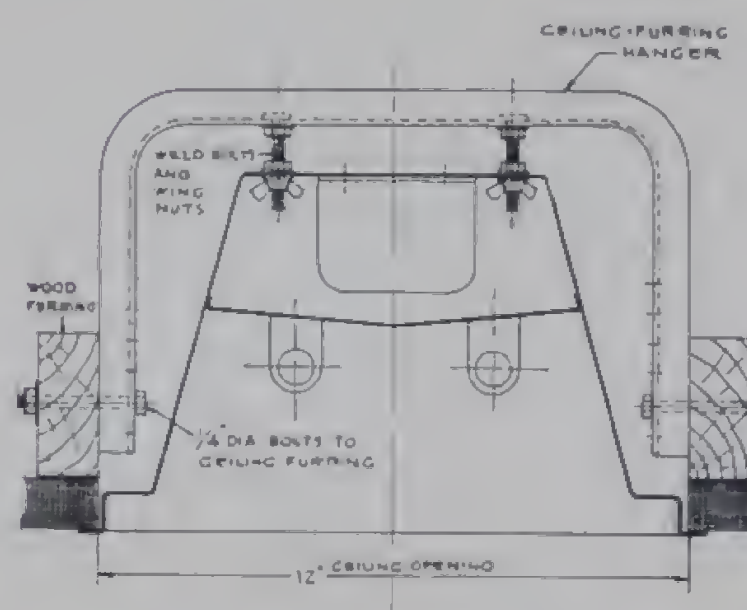
Troffer supported from structural ceiling by conduit and No. 5200 Hanger Clamp, which clamps rigidly to No. 696 Wiring Channel.



Mounting Hanger No. 695 supporting troffer and ceiling furring. Hanger is hung from the structural ceiling by conduit or rod suspension. Furring is bolted to the legs of the hanger. At least one mounting hanger is required for each 4-foot troffer section, plus one for the end of the row.

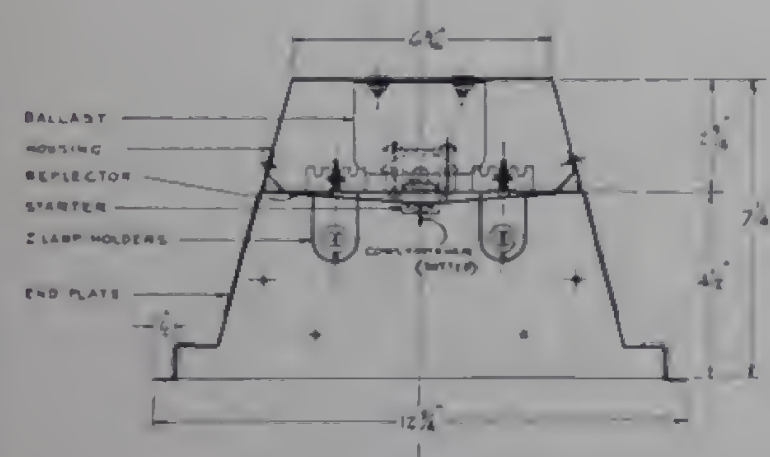


Troffer supported from structural ceiling by means of $\frac{1}{2}$ inch conduit, secured by locknuts through knockouts in top of housing.

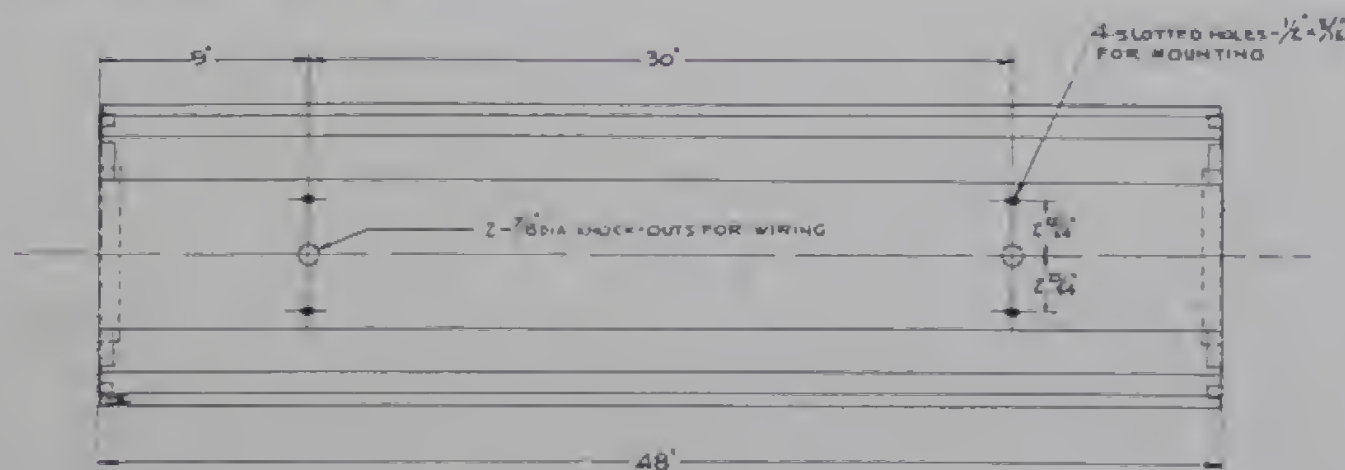


Mounting Hanger No. 695 supporting troffer only. Furring is bolted to the legs of the hanger through whichever adjustment hole brings the troffer flange flush with the ceiling. At least one hanger is required for each 4-foot troffer section, plus one for the end of the row.

DIMENSIONAL DATA

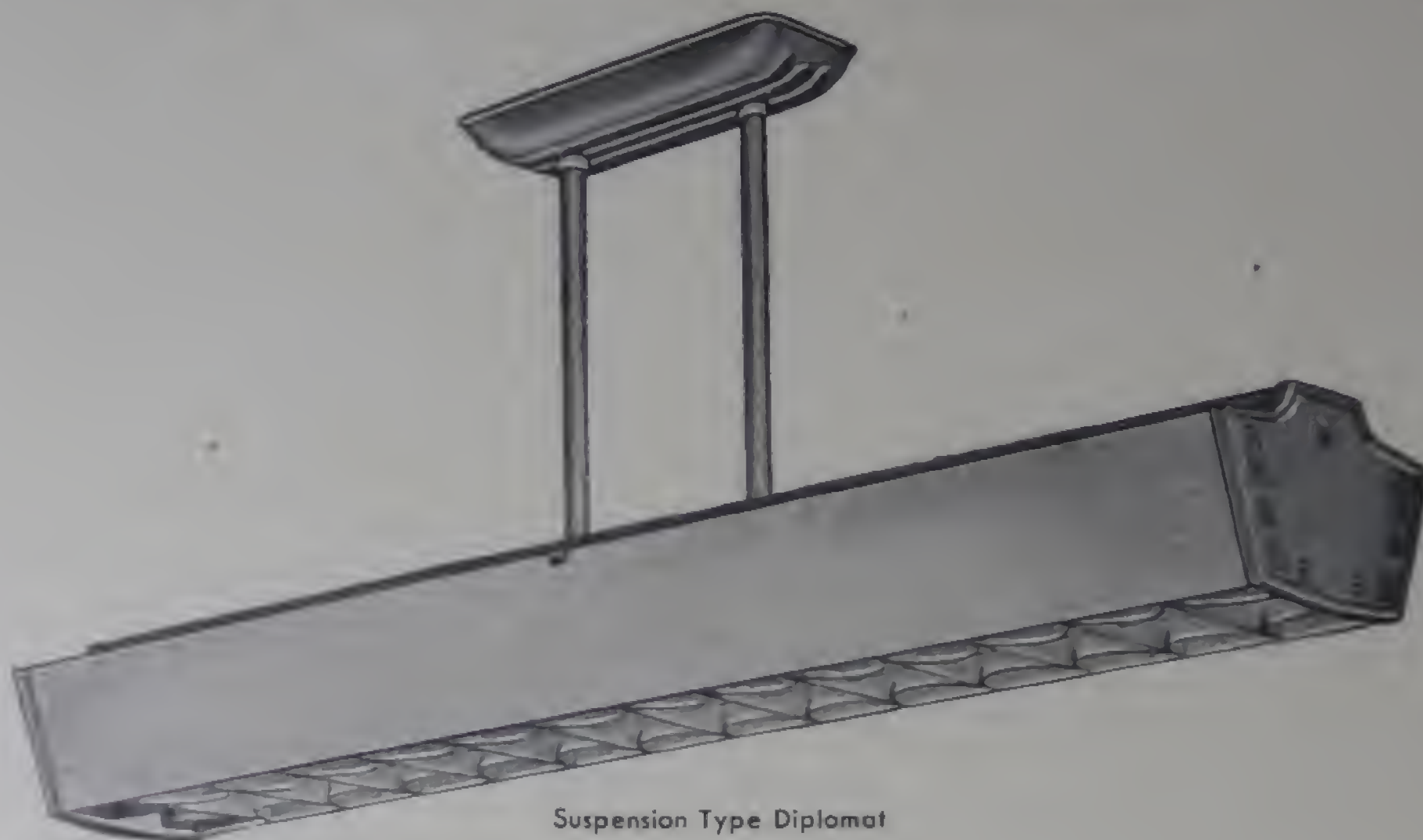


Cross Section



Plan Showing Mounting Holes

GENERAL ELECTRIC "DIPLOMAT"



Suspension Type Diplomat

The Diplomat makes possible modern economical lighting that results in increased production, greater efficiency and reduced costs. Adequate quantities of cool, glare-free light reduce eyestrain and fatigue, and promote easier, faster and more accurate seeing.

The Diplomat is suitable for use in offices, schools, stores, and public buildings — its clean, refreshing lines harmonizing with all interiors. Attractive side panels of etched, ribbed glass and a louver of unusual beauty adequately shield the light source.

This luminaire is easily and quickly installed either individually or in continuous rows. Maintenance is

simplified because there are few horizontal surfaces on which dust can collect. Lamp replacements are made easily — by swinging open the strong, hinged louver. Removal of glass panels is unnecessary.

The Diplomat is manufactured in two models, the Suspension Type and the Ceiling Type. Both of these models are available for operation with two, three or four 40 watt lamps.

The luminaire is supplied wired, complete with FS-40 Watch Dog starters and approved high power factor ballasts which reduce stroboscopic effects to a minimum.

Cat. No.	Price Each	Lamp Watts	Description	Line Voltage	Approx. Watts Consumed	Dimensions (Inches)			Ship. Wt
						Length	Width	Depth	
60 CYCLE									
6320	\$34.50	2-40	Ceiling Type	110-125	97	48 $\frac{7}{8}$	10 $\frac{1}{4}$	6 $\frac{1}{2}$	33
6330	47.50	3-40	Ceiling Type	110-125	143	48 $\frac{7}{8}$	10 $\frac{1}{4}$	6 $\frac{1}{2}$	37
6300	53.00	4-40	Ceiling Type	110-125	194	48 $\frac{7}{8}$	10 $\frac{1}{4}$	6 $\frac{1}{2}$	41
25 CYCLE									
6325	42.00	2-40	Ceiling Type	110-125	106	48 $\frac{7}{8}$	10 $\frac{1}{4}$	6 $\frac{1}{2}$	40
6345	68.00	4-40	Ceiling Type	110-125	212	48 $\frac{7}{8}$	10 $\frac{1}{4}$	6 $\frac{1}{2}$	54
66 $\frac{2}{3}$ CYCLE									
6362	34.50	2-40	Ceiling Type	110-125	99	48 $\frac{7}{8}$	10 $\frac{1}{4}$	6 $\frac{1}{2}$	33
6360	47.50	3-40	Ceiling Type	110-125	143	48 $\frac{7}{8}$	10 $\frac{1}{4}$	6 $\frac{1}{2}$	37
6366	53.00	4-40	Ceiling Type	110-125	198	48 $\frac{7}{8}$	10 $\frac{1}{4}$	6 $\frac{1}{2}$	40
ROD HANGER ASSEMBLY ONLY									
6399	3.30	.....	.....	.....	.....	.....	.....	19 *	3
†6397	1.65	.....	.....	.....	.....	.....	.....	6 †	2

NOTE: When ordering Suspension Type, specify as two items, namely: Ceiling Type and Rod Hanger Assembly.

*Hanger length only, ceiling to top of fixture. Overall suspension to bottom of fixture, 25 inches.

†For semi-ceiling mounting of 25 cycle fixtures.

‡Hanger length only, ceiling to top of fixture. Overall suspension to bottom of fixture, 12 $\frac{1}{2}$ inches.

For additional length hangers, add \$1.00 per foot or fraction.

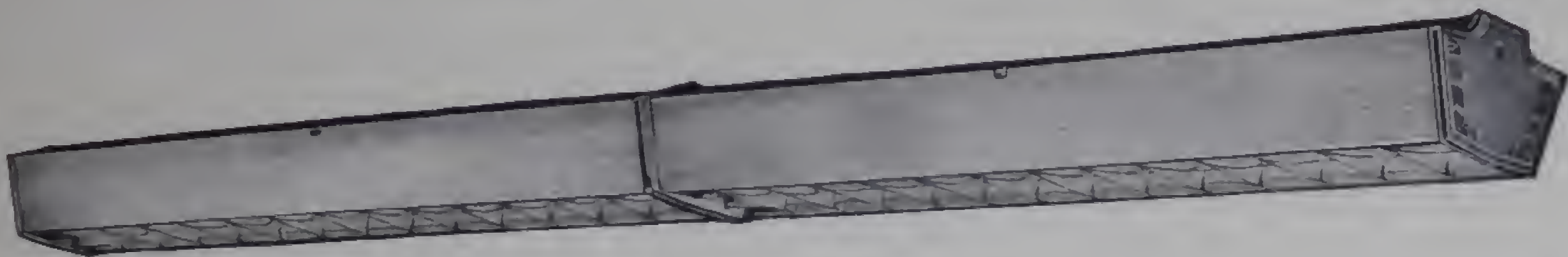
Instant-start Ballasts available for 60 cycle 110-125 volt operation (no starters required).

2-40 watt Ceiling Type, Cat. 6323—\$39.25 each.

4-40 watt Ceiling Type, Cat. 6303—\$62.50 each.

Lamps are not included in prices.

GENERAL ELECTRIC "DIPLOMAT"



Continuous Mounting of Ceiling Type

Continuous Mounting

Both the Suspension Type and the Ceiling Type Diplomat may be installed in continuous runs.

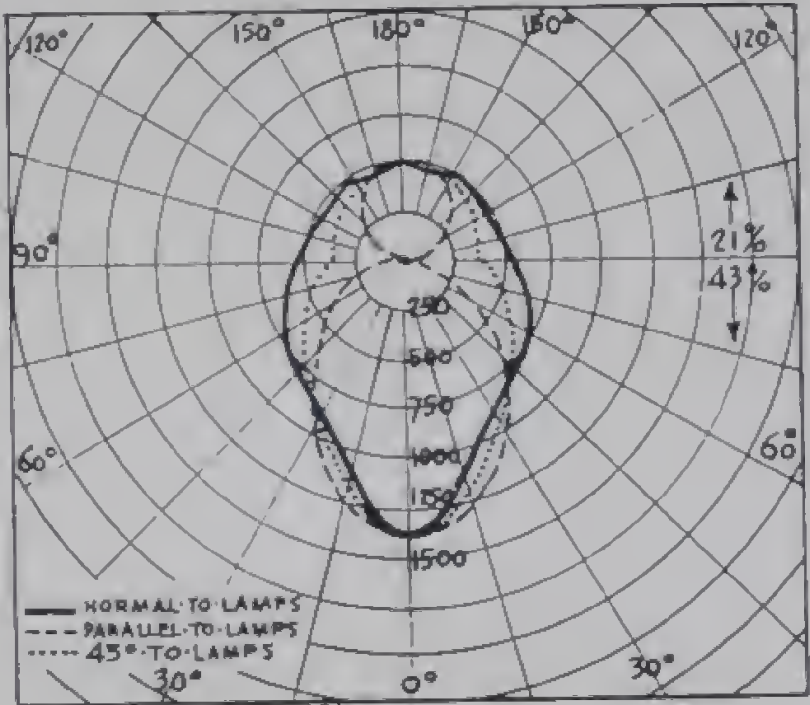
Simply remove knockout from end plates and connect units with 1/2 inch nipple and locknuts.

Important Features

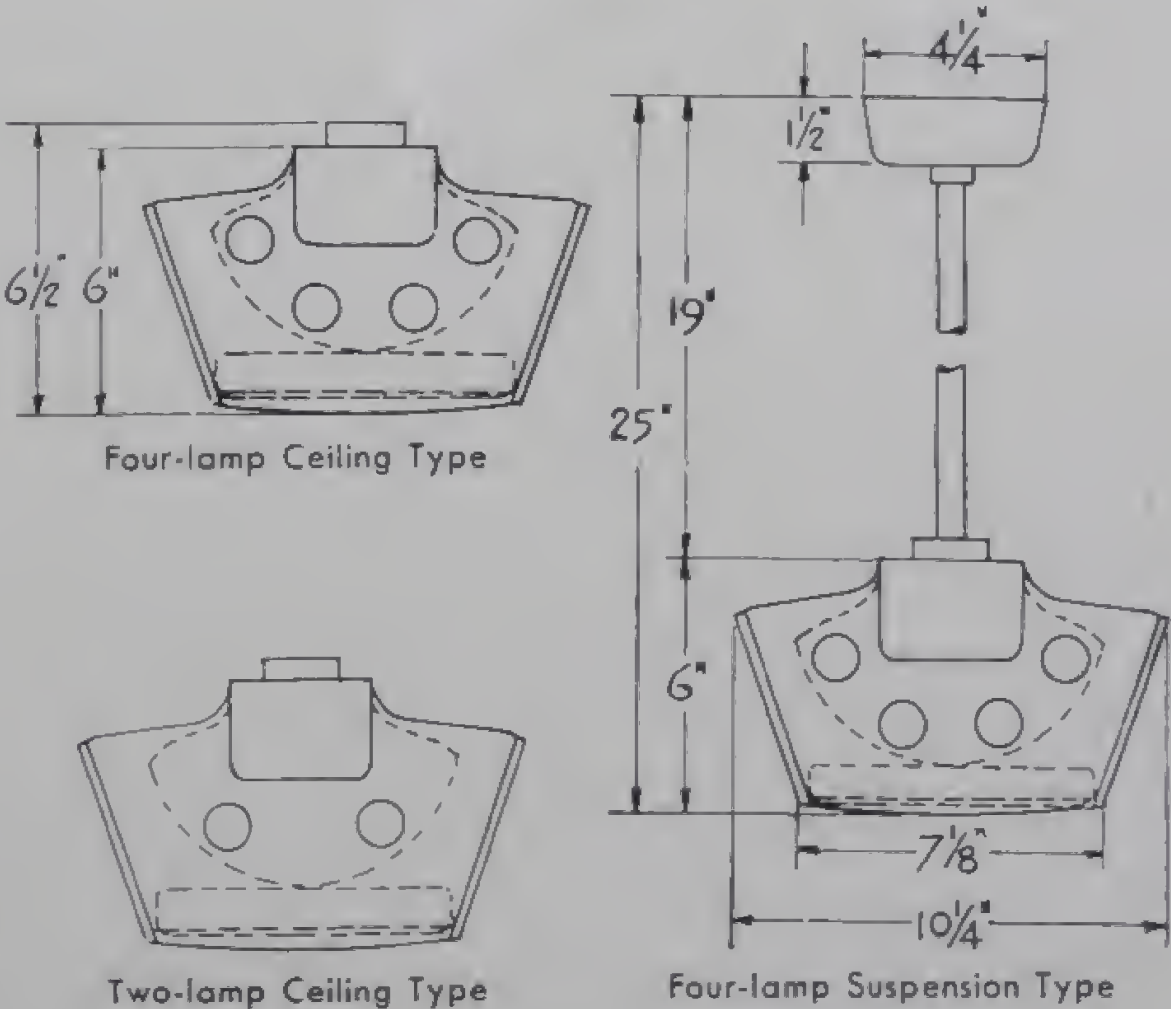
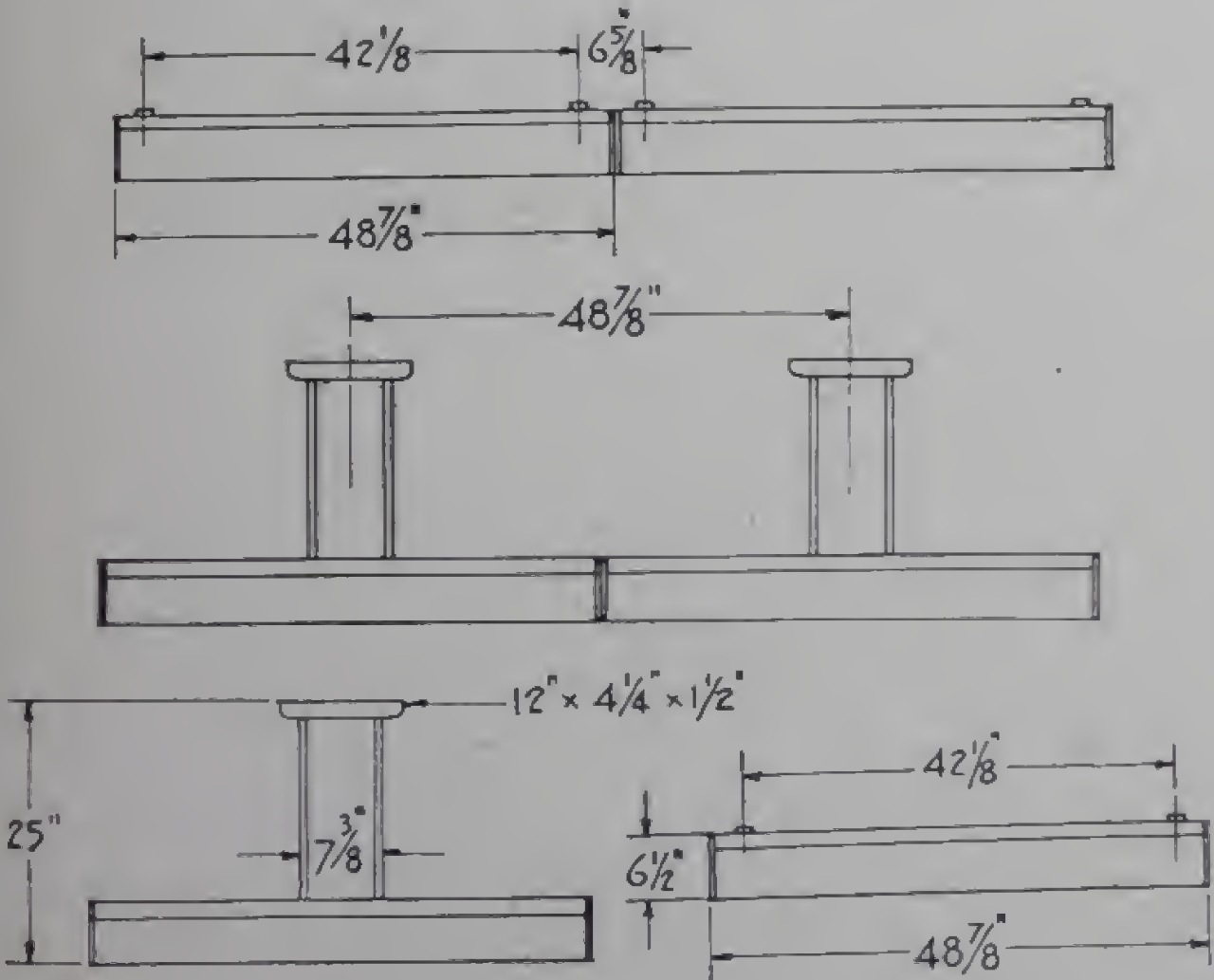
- 1. Equipped with twist-type sockets mounted slot-up, so that lamps cannot fall out.
- 2. Wire-way cover is held in place by four screws with slotted holes for accessibility.
- 3. All metal parts finished in baked ivory enamel; reflecting surfaces in baked white enamel.

- 4. Slots in steel end plates are backed with translucent plastic to give luminous appearance.
- 5. Lamps can be replaced from top or bottom without removing glass panels.
- 6. Maintenance is simplified by easily removed louver. Starters readily accessible between lamps.
- 7. Attractively-designed stamped canopy has knockout for switch. Stems and canopy finished in satin aluminite.
- 8. Well-designed corrugated cartons ensure safe transportation of luminaire.

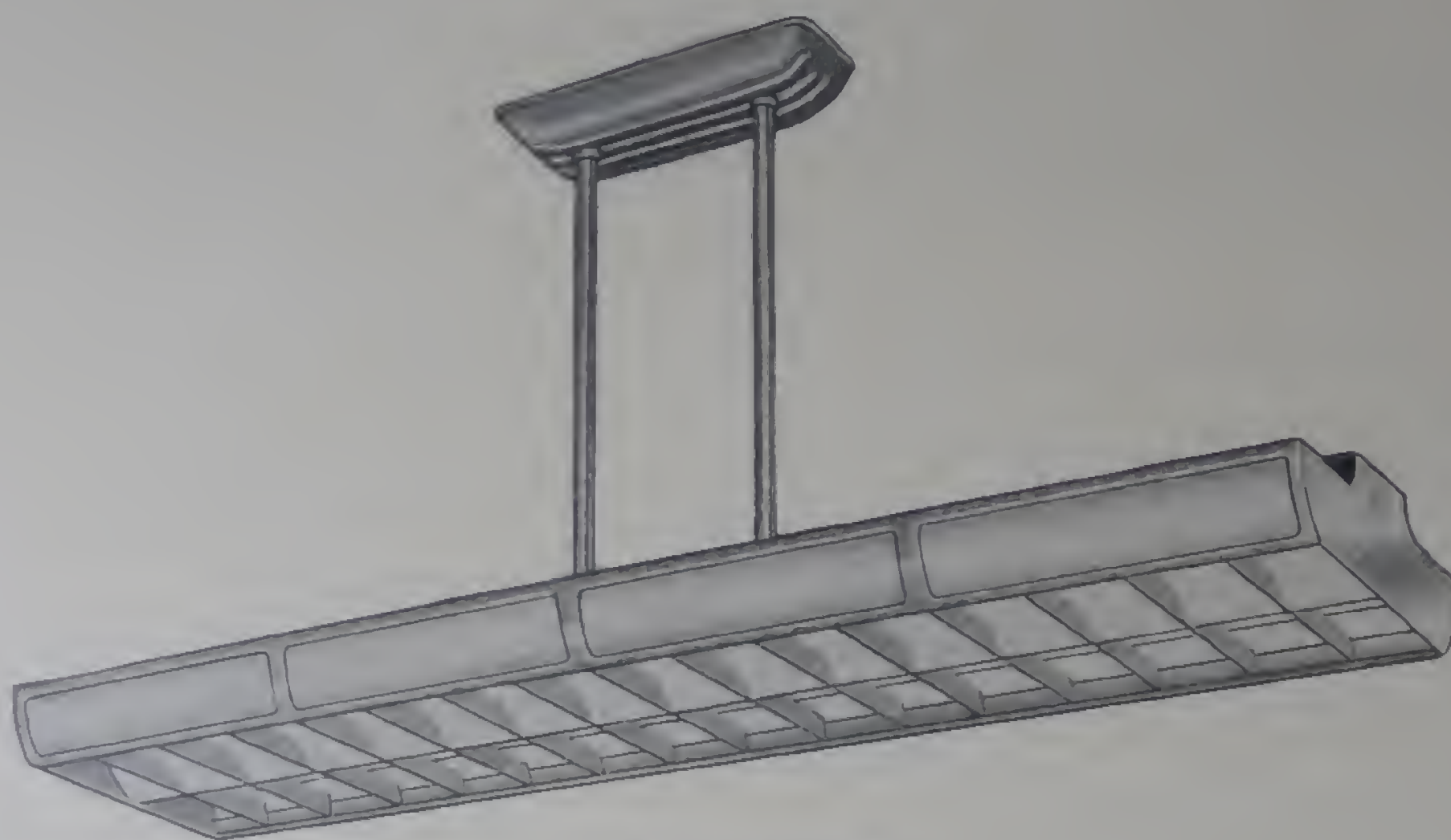
MF = .70 ↑ 21% 43% ↓	Ceiling	75%			50%		
	Walls	50%	30%	10%	50%	30%	10%
	Room Index	UTILIZATION FACTORS					
	J	.22	.18	.15	.20	.16	.14
	I	.26	.23	.21	.25	.21	.19
	H	.29	.26	.24	.28	.24	.22
	G	.32	.29	.26	.30	.27	.25
	F	.35	.32	.28	.32	.29	.27
	E	.39	.35	.32	.35	.32	.29
	D	.42	.38	.35	.38	.35	.32
	C	.45	.40	.37	.39	.37	.34
	B	.47	.43	.41	.42	.39	.37
	A	.49	.45	.43	.44	.41	.39



Distribution Curve



GENERAL ELECTRIC "BRIGADIER"



Suspension Type Brigadier

The Brigadier provides uniform diffused lighting for schools, offices, stores and similar locations. Lamps are shielded by means of plastic side panels and a well-designed louver. The open top reflector makes possible suitable illumination of the ceiling, thus reducing brightness contrasts within the field of view.

This luminaire is particularly suited for school and office use, since the side panel brightness is very low. The resultant low brightness ratios make possible quick, accurate seeing with a minimum of effort.

The proportions of the Brigadier are such that it provides a light source of low brightness and relatively large area, yet it is singularly neat and unobtrusive in appearance.

The Brigadier is available in two models, the

Ceiling Type and the Suspension Type. Each model may be installed in continuous runs if desired. The Ceiling Type consists of a body and ceiling canopy assembly. The Suspension Type consists of a body and rod hanger assembly. When ordering, the two component parts must be specified as separate items.

Construction

Each Brigadier body uses four 40 watt fluorescent lamps which are accessible through the top of the reflector without removing the louver. The housing is ventilated to secure proper cooling of ballasts. Starters are accessible without removing lamps. The louver can easily be unsnapped from housing so that ballasts and wiring can be reached. Maintenance is speeded by the simple yet sturdy design of the louver.

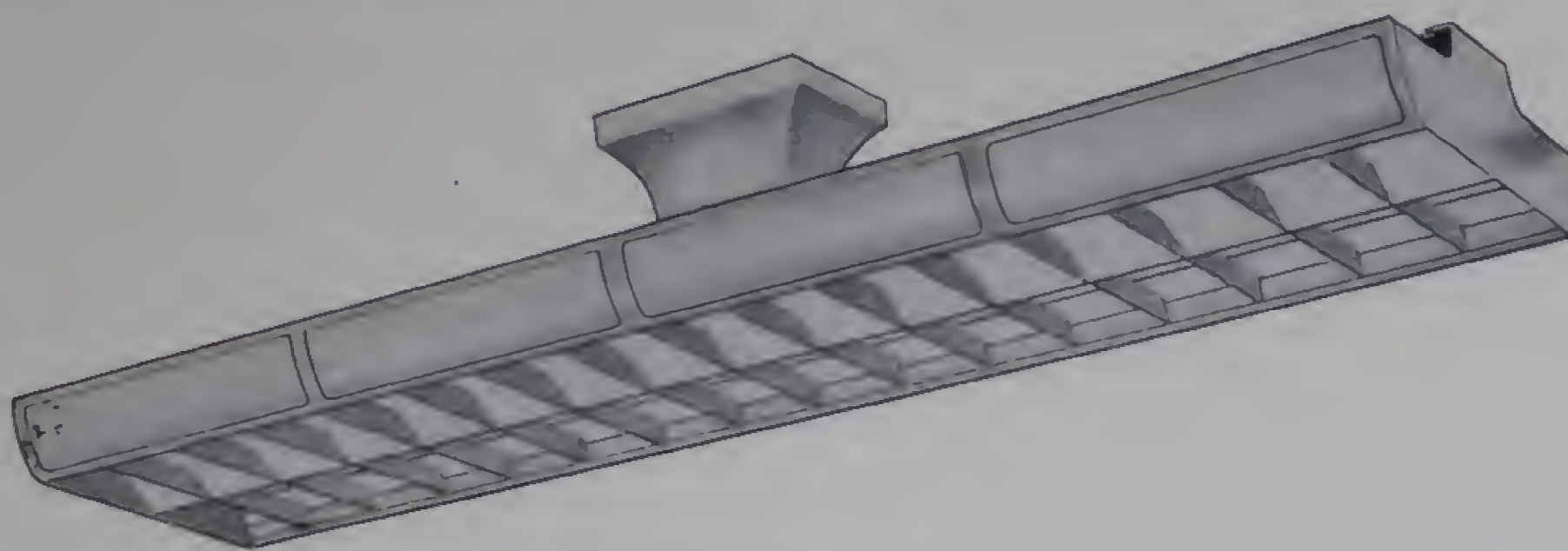
Cat. No.	Price Each	Cycles	Lamp Watts	Description	Line Voltage	Approx. Watts Consumed	Dimensions (Inches)			Ship. Wt
							Length	Width	Depth	
6600	\$49.00	60	4-40	Body only	110-125	194	48 $\frac{5}{8}$	13 $\frac{7}{8}$	4 $\frac{1}{8}$	33
*6603	58.50	60	4-40	Body only	110-125	216	48 $\frac{5}{8}$	13 $\frac{7}{8}$	4 $\frac{1}{8}$	42
6645	64.00	25	4-40	Body only	110-125	212	48 $\frac{5}{8}$	13 $\frac{7}{8}$	4 $\frac{1}{8}$	46
6666	49.00	66 $\frac{2}{3}$	4-40	Body only	110-125	198	48 $\frac{5}{8}$	13 $\frac{7}{8}$	4 $\frac{1}{8}$	32
6698	1.30	....	....	Ceiling canopy assembly	....	....	8 $\frac{7}{8}$	5 $\frac{9}{16}$	4 $\frac{7}{16}$	3
6699	3.30	....	....	Rod hanger assembly	....	....	....	....	19 $\frac{7}{8}$	3

For additional length rod hanger add \$1.00 per foot or fraction.

*Equipped with Instant-Start ballasts (no starters required). Must be used with Instant-Start lamps.

Lamps are not included in prices.

GENERAL ELECTRIC "BRIGADIER"



Ceiling Type Brigadier

All metal parts are beautifully finished in baked ivory enamel; reflecting surfaces and louver are finished in baked white enamel. Side panels are of translucent plastic which takes on a warm ivory color when lamps are lighted. Canopy and stems are finished in satin alumilite.

Overall suspension to bottom of reflector: Ceiling type, $8\frac{9}{16}$ inches; Suspension type, 24 inches.

Installation

Ceiling canopy assembly is fastened to housing by means of four screws which project from top of housing. Rod hanger assembly is supplied with channel adapter which also secures to these screws.

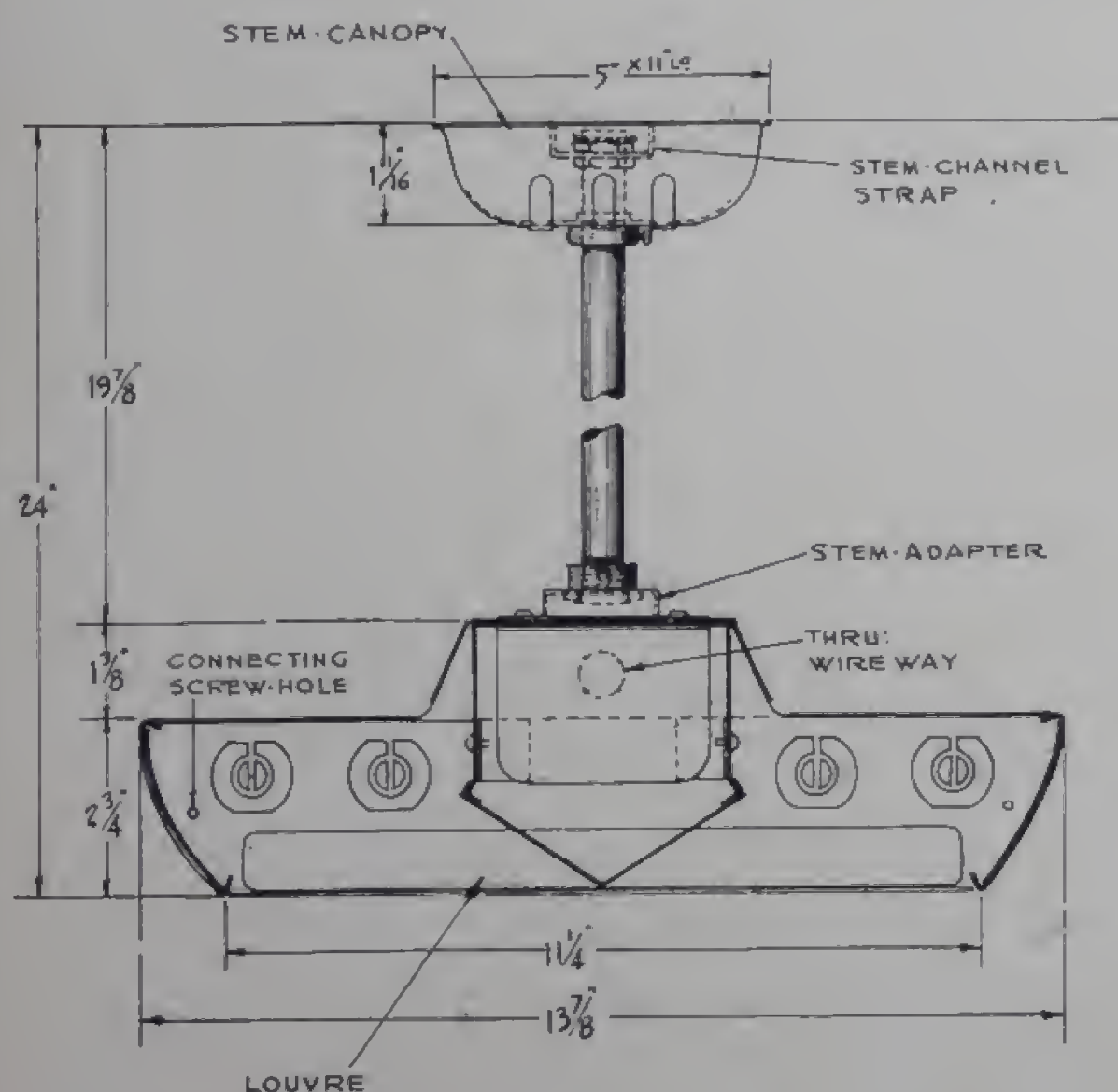
Ceiling strap is provided for fastening either type of fixture to ceiling. A hickey, locknut and nipple are included for mounting on outlet box stud.

Continuous Mounting

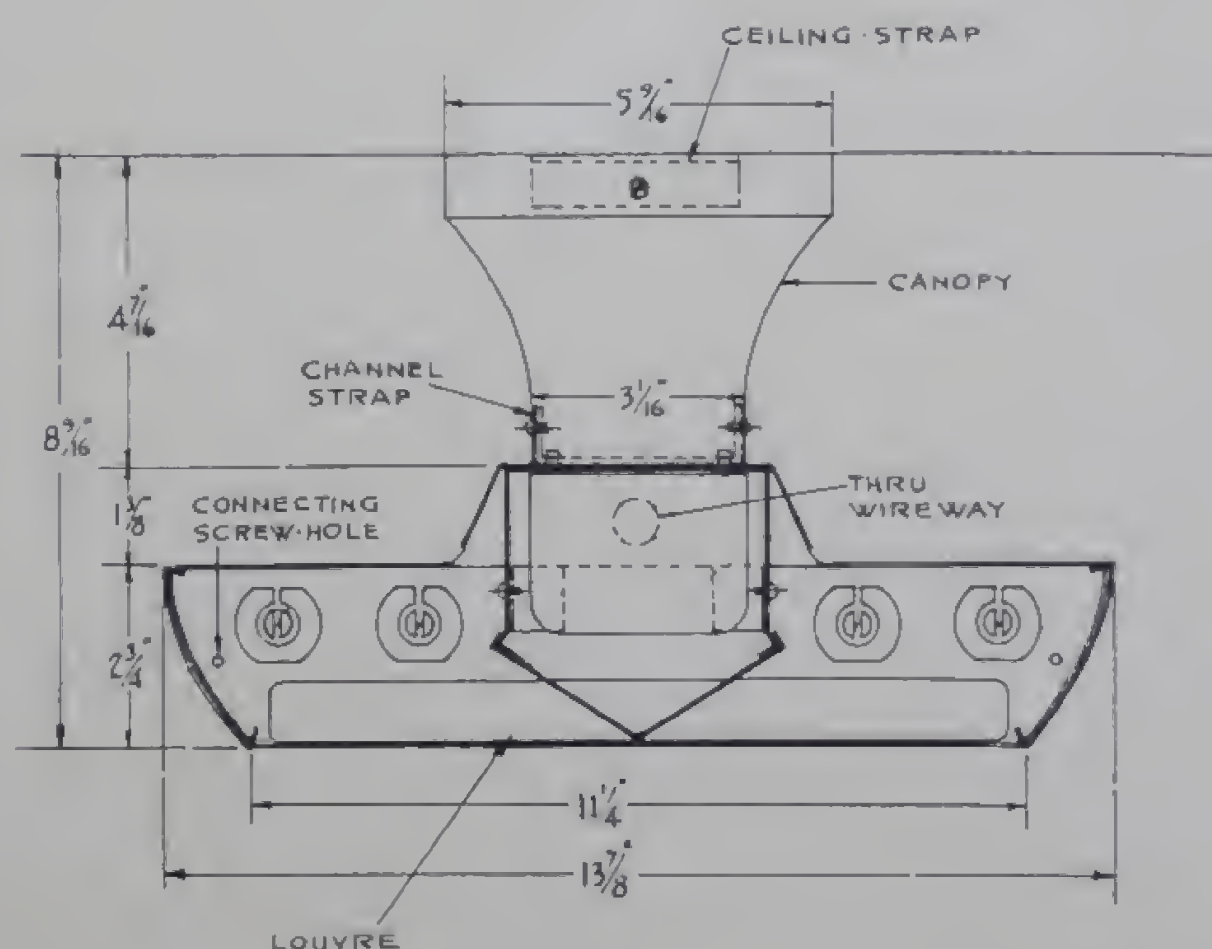
To mount in continuous rows, first remove knock-outs from end plates. Then remove plug buttons from two holes in each end plate, and bolt fixtures together through these holes.

Auxiliary Equipment

Luminaire is supplied wired, complete with FS-40 Watch Dog starters and approved tulamp high power factor ballasts which reduce stroboscopic effects to a minimum.

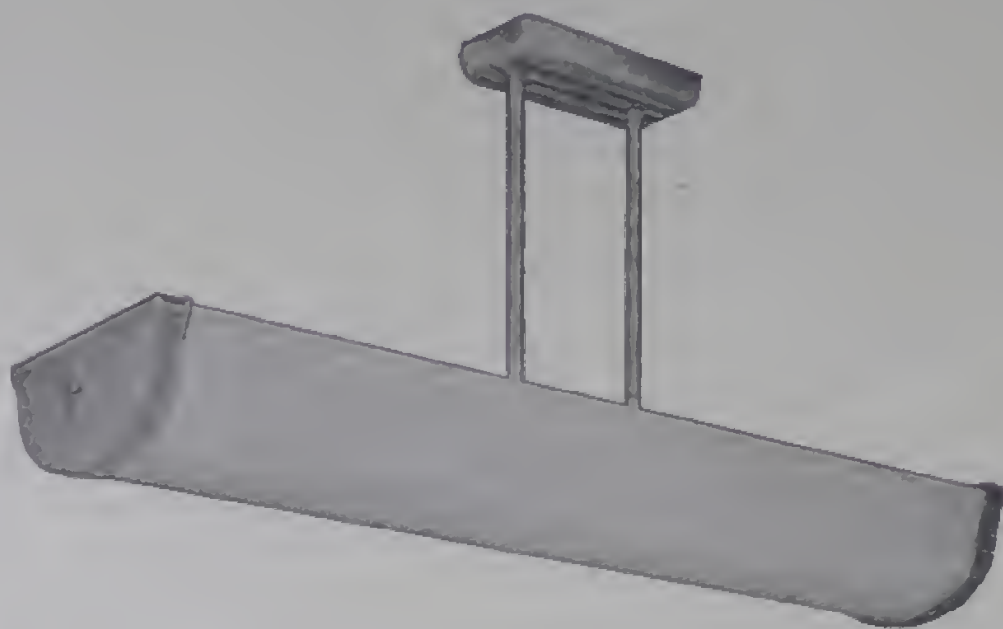


Cross Section of Suspension Type



Cross Section of Ceiling Type

GENERAL ELECTRIC "MODEL 6900" LUMINAIRE



Suspension Type With Shield



Suspension Type Without Shield

Distinctive and modern in appearance, this four lamp luminaire provides cool illumination at high efficiencies. It is particularly suitable for stores, offices, schools and similar areas. A feature is the use of glass end plates which spread a pleasing luminous glow. Complete shielding of the lamps can be obtained by a shield made of ribbed Albalite diffusing glass. This shield can be readily installed initially or may be added at any future time. Luminaire may be mounted on the ceiling or suspended by rods.

Construction

Reflector and ceiling pan are made of heavy gauge

metal, finished inside and out in baked white enamel. Rod hanger assembly is finished in satin alumilite. All auxiliary equipment is mounted in the reflector, which is securely attached to the ceiling pan by means of four cam-type fasteners. These fasteners can be operated quickly and easily with only a quarter turn. When detached from ceiling pan, the reflector assembly hangs by two chains, to facilitate installation. The end plates prevent lamps from falling. To relamp, simply remove end plates by loosening two thumb screws. Starters are accessible without removing lamps.

Installation

For suspension mounting, brackets are provided

Cat. No.	Price Each	Cycles	Lamp Watts	Description	Line Voltage	Approx. Watts Consumed	Dimensions (Inches)			Ship. Wt.
							Length	Width	Depth	
6900	\$39.50	60	4-40	Exposed—Ceiling Type	110-125	194	49 $\frac{1}{4}$	11 $\frac{1}{2}$	5 $\frac{3}{4}$	31
†6903	49.00	60	4-40	Exposed—Ceiling Type	110-125	216	49 $\frac{1}{4}$	11 $\frac{1}{2}$	5 $\frac{3}{4}$	39
6945	54.50	25	4-40	Exposed—Ceiling Type	110-125	212	49 $\frac{1}{4}$	11 $\frac{1}{2}$	5 $\frac{3}{4}$	49
6966	39.50	66 $\frac{2}{3}$	4-40	Exposed—Ceiling Type	110-125	198	49 $\frac{1}{4}$	11 $\frac{1}{2}$	5 $\frac{3}{4}$	31
6999	3.30	....	....	Rod Hanger Assembly	.....	.....	24†	.....	.....	3
*6901	8.00	....	....	Glass Shield	.....	.....	48	10 $\frac{3}{4}$	5 $\frac{1}{8}$	17

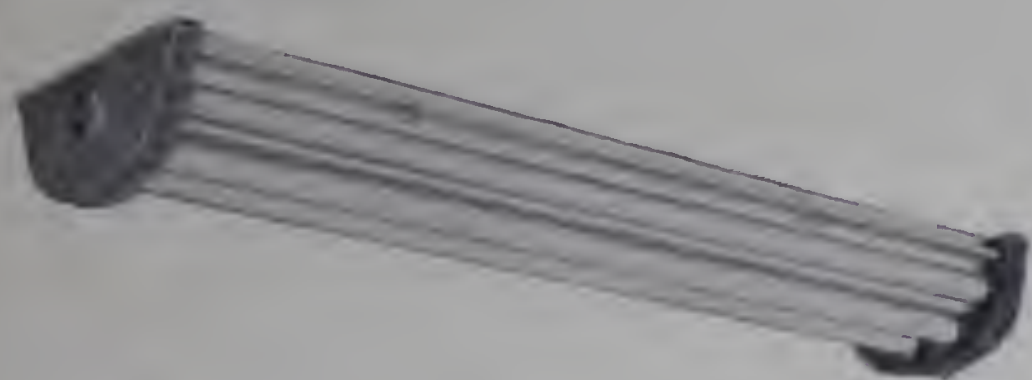
NOTE: When ordering Suspension Type, specify as two items, namely: Ceiling Type and Rod Hanger Assembly.

*Not recommended when fixture is mounted on ceiling.

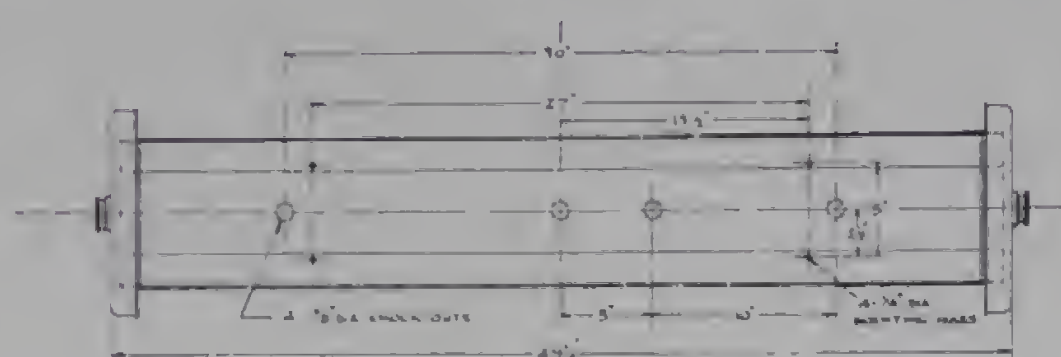
†Hanger length only, ceiling to top of fixture. Overall suspension to bottom of fixture, 30 inches. For additional length hanger add \$1.00 per foot or fraction.

‡Equipped with instant start ballasts (no starters required). Must be used with instant start lamps. Lamps are not included in prices.

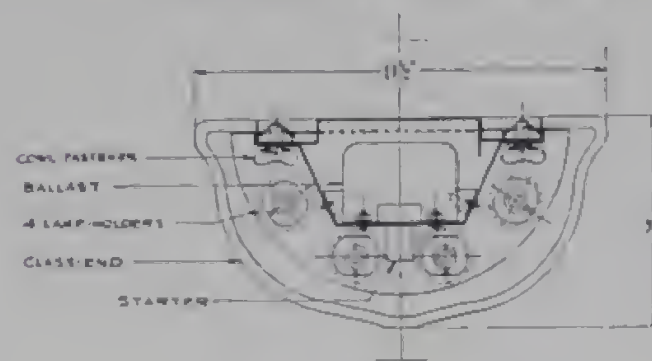
GENERAL ELECTRIC "MODEL 6900" LUMINAIRE



Ceiling Type



Plan Showing Mounting Holes



Cross Section

on the ceiling pan through which the rods are secured by locknuts. Fixture strap can be mounted on outlet box, or fastened directly to the ceiling.

To mount luminaire on ceiling, remove brackets, release cowl fasteners, and unhook chains. Ceiling pan can now be fastened to ceiling, and circuit wires brought down through one of the four knockouts provided. Attach chains to the lugs in ceiling pan, make the necessary connections, and secure reflector assembly to ceiling pan by the cowl fasteners.

Continuous Mounting

The glass end plates with which "Model 6900" luminaires are equipped do not permit mounting in

continuous rows. Metal end plates finished in baked ivory enamel will be supplied on request, at no extra charge, whenever it is desired to install these luminaires in continuous runs. Specify one No. 6998 end plate assembly for each fixture.

Glass shield No. 6901 cannot be used with these metal end plates.

Auxiliary Equipment

Luminaire is supplied wired, complete with FS-40 Watch Dog starters and approved tulamp high power factor ballasts which reduce stroboscopic effects to a minimum.

ILLUMINATION PERFORMANCE (Without Shield)

(For "Model 6900" with Shield, multiply Foot Candle Values by 0.75)

Floor Area Per Fixture Sq. Ft.	Room† Finish	FOOT-CANDLES*		
		Room Proportions‡		
		Wide	Medium	Narrow
50	Light	70	62	47
	Medium	59	52	40
60	Light	59	53	39
	Medium	49	43	33
70	Light	50	44	34
	Medium	42	37	29
80	Light	44	39	30
	Medium	37	32	25

Floor Area Per Fixture Sq. Ft.	Room† Finish	FOOT-CANDLES*		
		Room Proportions‡		
		Wide	Medium	Narrow
90	Light	39	35	26
	Medium	33	29	22
100	Light	35	31	24
	Medium	29	26	20
110	Light	32	28	21
	Medium	27	24	18
120	Light	29	26	20
	Medium	25	22	17

* Foot-candles are calculated in-service values, using maintenance factor of .70 which allows 30% for depreciation due to dust collection and ageing of lamps. This tabulation applies where average mounting heights of 9½ to 11½ feet are used. Figures are based on the use of 4 - 40 watt, 60 cycle 4500°K White lamps per luminaire. For 60 cycle 3500°K White lamps multiply values by 1.1. For 60 cycle 6500°K Daylight lamps multiply values

by .91. For 25 cycle lamps multiply 60 cycle values by .95.
† Light—Ceiling 75% or better Reflection Factor, Walls 50%.
Medium—Ceiling 50% Reflection Factor, Walls 30%.
Dark finishes not recommended.
‡ Wide—Room Width is 4 times mounting height of units above floor.
Medium—Room Width is 2 times mounting height of units above floor.
Narrow—Room Width is about equal to mounting height of units above floor.

GENERAL ELECTRIC "MODEL 6920" LUMINAIRE



Suspension Type With Shield



Suspension Type Without Shield

This two-lamp luminaire is similar in appearance to the four-lamp model described on page 50. Very neat and pleasing in design, it finds ready application in lighting small stores, kitchens, hallways and similar locations. Glass end plates provide a soft luminous glow and prevent lamps from falling out. Complete shielding of the lamps can be obtained by an Alba-lite glass shield which can be installed initially or may be added at any future time.

Construction

Reflector and ballast cover are made of heavy

gauge metal, finished inside and out in baked white enamel. Rod hanger assembly is finished in satin alumilite. All auxiliary equipment is mounted in the reflector, which securely fastens to the ballast cover by two cam-type fasteners. Sockets are mounted on rigid metal platform, to assure accurate socket spacing. Starters are accessible without removing lamps.

Installation

Fasten ballast cover to ceiling and bring circuit wires down through knockout in centre; or for sus-

Cat. No.	Price Each	Cycles	Lamp Watts	Description	Line Voltage	Approx. Watts Consumed	Dimensions (Inches)			Ship. Wt.
							Length	Width	Depth	
6920	\$22 50	60	2-40	Exposed—Ceiling Type	110-125	97	48 $\frac{7}{8}$	8 $\frac{3}{8}$	6 $\frac{3}{16}$	20
†6923	27 25	60	2-40	Exposed—Ceiling Type	110-125	108	48 $\frac{7}{8}$	8 $\frac{3}{8}$	6 $\frac{3}{16}$	24
6925	30 00	25	2-40	Exposed—Ceiling Type	110-125	106	48 $\frac{7}{8}$	8 $\frac{3}{8}$	6 $\frac{3}{16}$	30
6962	22 50	66 $\frac{2}{3}$	2-40	Exposed—Ceiling Type	110-125	99	48 $\frac{7}{8}$	8 $\frac{3}{8}$	6 $\frac{3}{16}$	20
6999	3 30	...	...	Rod Hanger Assembly	.....	.....	24*	.....	.....	3
6912	6 00	...	...	Glass Shield	.....	.....	48	7 $\frac{3}{4}$	3 $\frac{3}{4}$	11

NOTE: When ordering Suspension Type, specify as two items, namely: Ceiling Type and Rod Hanger Assembly.

*Hanger length only, ceiling to top of fixture. Overall suspension to bottom of fixture, 30 inches. For additional length hanger add \$1.00 per foot or fraction.

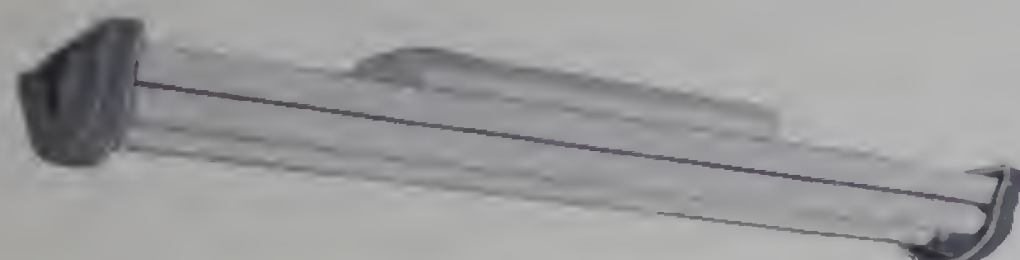
†Equipped with instant start ballasts (no starters required). Must be used with instant start lamps.

Lamps are not included in prices.

GENERAL ELECTRIC "MODEL 6920" LUMINAIRE



Continuous Mounting



Ceiling Type Without Shield

pension mounting, secure rods to cover with lock-nuts. Next, bring the reflector assembly up and close the cover plates, thus allowing assembly to hang on legs of ballast cover. Complete connections, secure reflector assembly tightly to ballast cover by means of the two cowl fasteners, and install end plates.

Continuous Mounting

The glass end plates with which "Model 6920" luminaires are equipped do not permit mounting in continuous rows. Metal end plates finished in baked ivory enamel will be supplied on request, at no extra charge, whenever it is desired to install these luminaires in continuous runs. Specify one No. 6997 end plate assembly for each fixture.

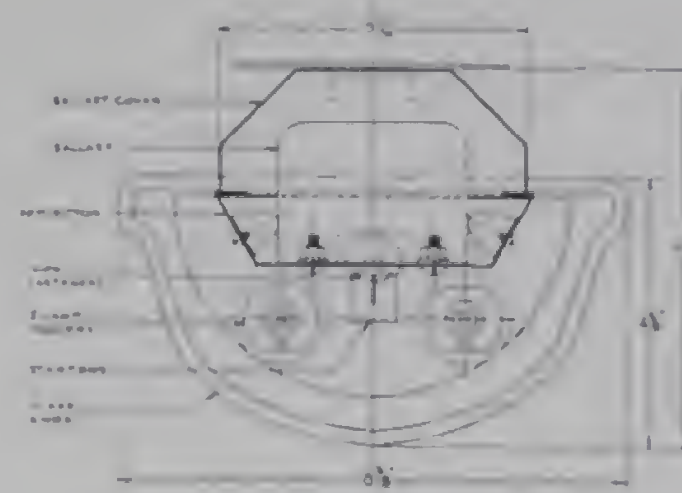
Glass shield No. 6912 cannot be used with these metal end plates.

Auxiliary Equipment

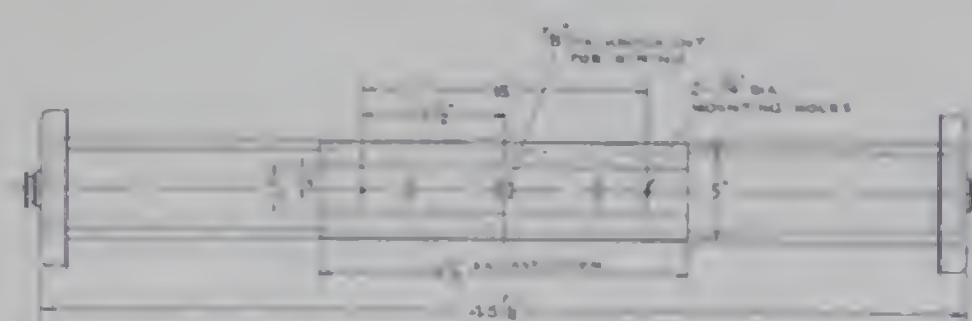
Luminaire is supplied wired, complete with FS-40 Watch Dog starters and approved tulamp high power factor ballast which reduces stroboscopic effects to a minimum.

UTILIZATION FACTORS

Room Index	Ceiling 75%			Ceiling 50%		
	Walls			Walls		
	50%	30%	10%	50%	30%	10%
J	.29	.24	.21	.28	.23	.20
I	.37	.31	.28	.34	.29	.26
H	.41	.36	.33	.38	.34	.31
G	.46	.40	.36	.41	.37	.34
F	.49	.44	.39	.44	.40	.37
E	.54	.49	.45	.49	.45	.41
D	.59	.53	.49	.53	.49	.46
C	.61	.56	.52	.54	.51	.48
B	.66	.61	.57	.59	.55	.53
A	.68	.64	.60	.61	.57	.55



Cross Section



Plan Showing Mounting Holes

ILLUMINATION PERFORMANCE (Without Shield)

(For "Model 6920" with Shield, Multiply F.C. Values by 0.75)

Floor Area per Fixture Sq. Ft.	Room† Finish	FOOT-CANDLES*		
		Room Proportions‡		
		Wide	Medium	Narrow
20	Light Medium	89 73	79 66	61 50
30	Light Medium	60 50	54 44	40 33
40	Light Medium	45 37	40 33	31 25
50	Light Medium	36 29	32 27	24 20
60	Light Medium	30 24	27 22	20 17
70	Light Medium	25 21	22 19	17 15

This tabulation applies where average mounting heights of 9½ to 11½ feet are used.

*Foot-candles are calculated in-service values, using a maintenance factor of .70 which allows 30% for depreciation due to dust collection and ageing of lamps. Figures are based on the use of two 40-watt, 60 cycle 4500°K White lamps per luminaire. For 60 cycle 3500°K White lamps multiply values by 1.1. For 60 cycle 6500°K Daylight lamps multiply values by .91. For 25 cycle lamps multiply 60 cycle values by .95.

†Light—Ceiling 75% or better Reflection Factor, Walls 50%.

Medium—Ceiling 50% Reflection Factor, Walls 30%.

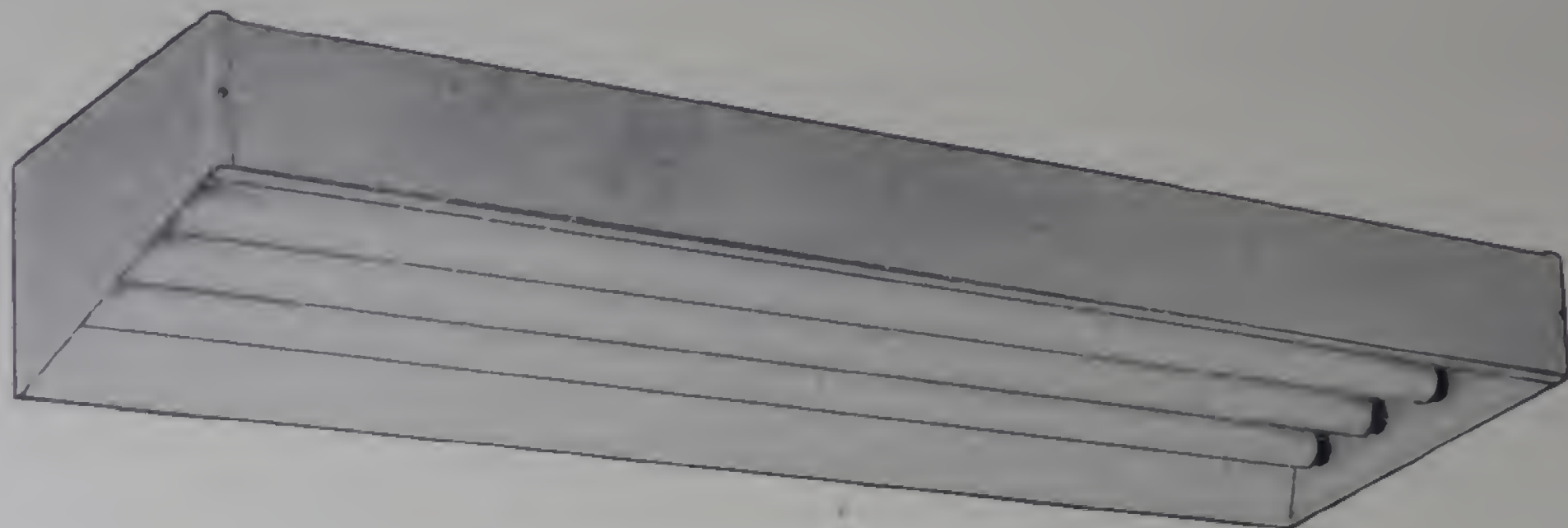
Dark finishes not recommended.

‡Wide—Room width is 4 times mounting height of units above floor.

Medium—Room width is 2 times mounting height of units above floor.

Narrow—Room width is about equal to mounting height of units above floor.

GENERAL ELECTRIC SHOW WINDOW LUMINAIRE



Show Window Luminaire Without Louver

Application

More customers and increased sales are the result when show windows are sufficiently well-lighted to attract the attention of the passers-by to the merchandise displayed. The necessary intensity of illumination is efficiently and economically provided by a properly designed installation of General Electric show window luminaires. Functional in design, yet pleasing in appearance, these luminaires will more than repay their cost in the added business obtainable through the increased attraction of the show window.

Construction

Lamps are deeply recessed in the reflector,

thus providing excellent shielding. In order to direct the light to the centre of the display, the reflector is at an angle of 12 degrees to the horizontal. All auxiliary equipment is mounted in the housing for ease of installation and maintenance. Sturdy one-piece reflector is easily detached from housing by four wing nuts, without disturbing wiring. Starters are readily accessible without removing lamps. Heavy gauge metal is finished inside and out with hard baked white enamel.

Louver

An attractively-patterned hinged louver is available for use with General Electric show window luminaires. This louver prevents direct viewing of

Cat. No.	Price Each	Cycles	Lamp Watts	Line Voltage	Approx. Watts Consumed	Dimensions (Inches)			Ship. Wt
						Length	Width	Depth	
LUMINAIRE ONLY									
6800	\$42.00	60	4-40	110-125	194	48 $\frac{1}{8}$	12 $\frac{5}{8}$	6 $\frac{1}{2}$	40
*6803	51.50	60	4-40	110-125	216	48 $\frac{1}{8}$	12 $\frac{5}{8}$	6 $\frac{1}{2}$	44
6845	57.00	25	4-40	110-125	212	48 $\frac{1}{8}$	12 $\frac{5}{8}$	6 $\frac{1}{2}$	58
6866	42.00	66 $\frac{2}{3}$	4-40	110-125	198	48 $\frac{1}{8}$	12 $\frac{5}{8}$	6 $\frac{1}{2}$	40
LOUVER ONLY									
6890	8.00	.....	.....	.....	.....	.....	.....	.....	10

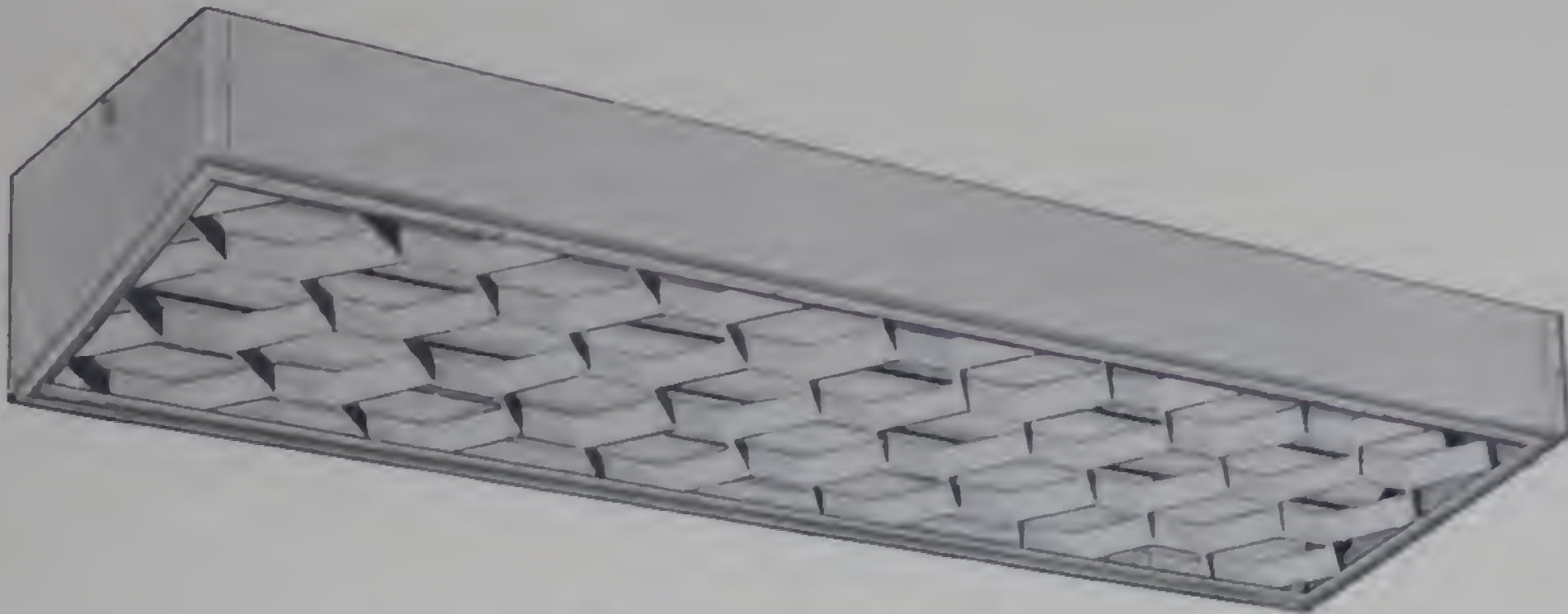
NOTE: When ordering luminaire with louver, specify as two items.

*Equipped with Instant-Start ballasts (no starters required). Must be used with Instant-Start lamps.

FS-44 Low Temperature Starters available on special order at \$8.80 additional per fixture.

Lamps are not included in prices.

GENERAL ELECTRIC SHOW WINDOW LUMINAIRE



Show Window Luminaire With Louver

the lamps by persons on the street as well as by those in the main display area of the store, particularly where the show window is open to the store. By thus eliminating distracting glare, full attention is directed to the merchandise on display.

The louver may be installed initially, or it can be added at any future time. Luminaires are supplied already drilled for hinges and spring clips, which are supplied with the louver. Installation can simply and quickly be effected. Louver swings clear for easy lamp replacement. Strongly constructed of heavy gauge metal, finished in baked white enamel.

Installation of Luminaire

May be mounted flush or suspended. Housing has two knockouts for $\frac{1}{2}$ inch conduit, on 30 inch centres. Four $\frac{5}{16}$ inch holes are provided

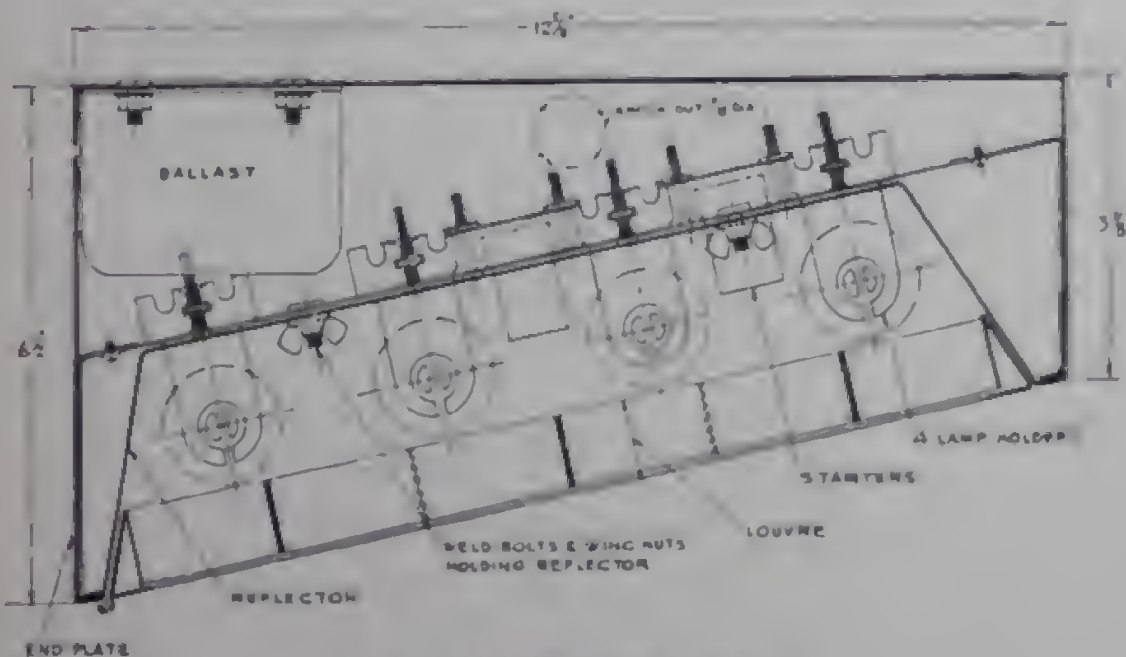
for ceiling mounting. During installation, reflector is easily removed making all wiring accessible for connections. For recessing, angle brackets will be supplied on special order, at no extra charge.

Continuous Mounting

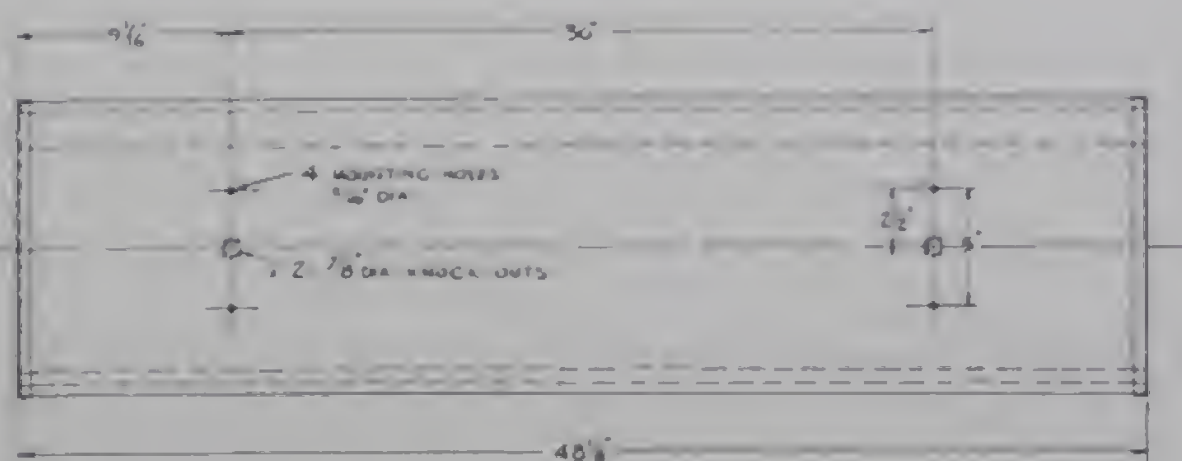
To mount in continuous rows, remove knockouts from end plates and fasten luminaires together by nipple and locknuts. Conduit can be connected between luminaires, through holes in end plates, to provide continuous wiring with any spacing of luminaires.

Auxiliary Equipment

Luminaire is supplied wired, complete with FS-40 Watch Dog starters and approved tulamp high power factor ballasts which reduce stroboscopic effects to a minimum.

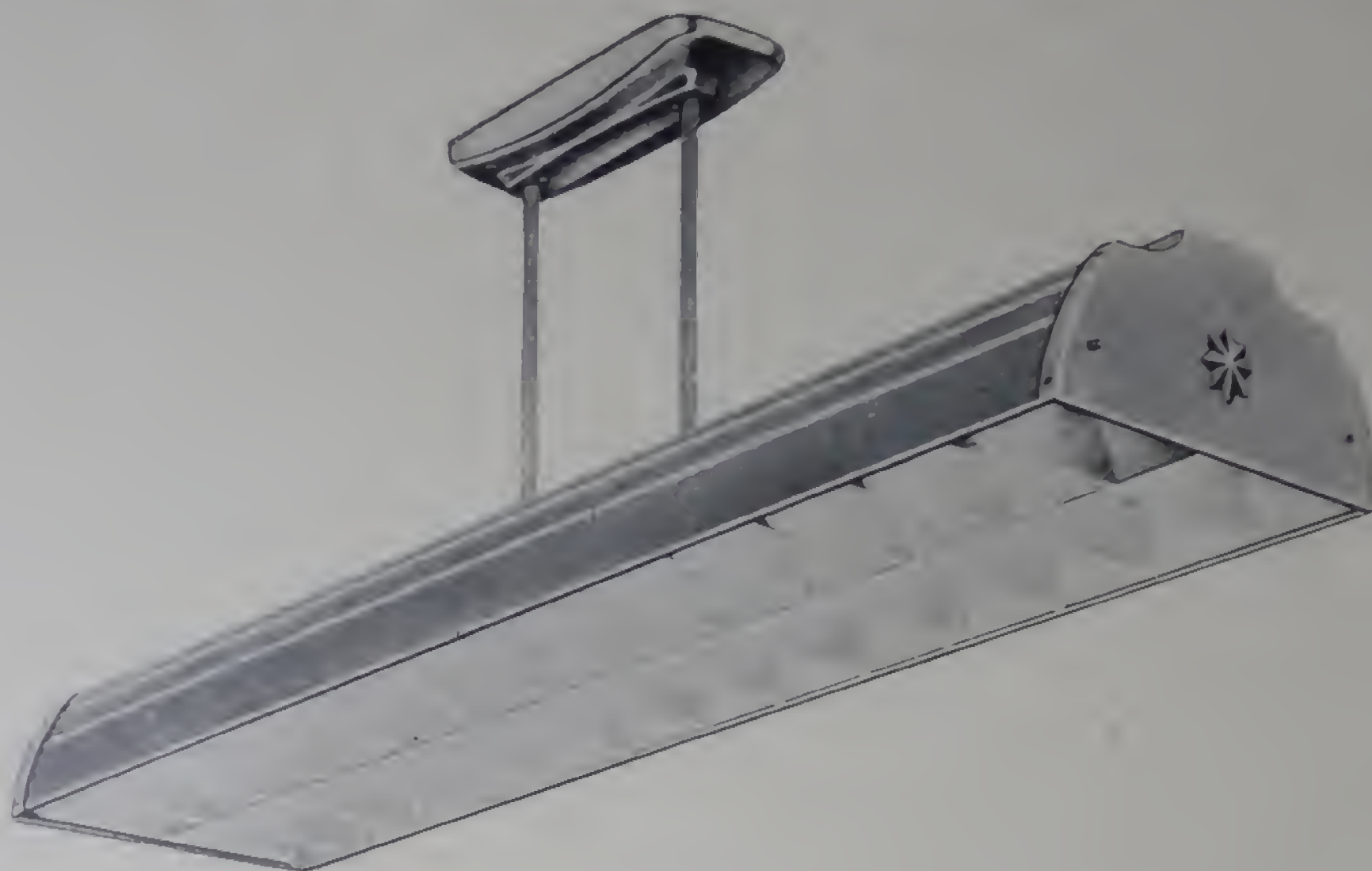


Cross Section (with Louver)



Plan Showing Mounting Holes

CURTIS "4060" LUMINAIRE



The low brightness of the "Forty-Sixty" luminaire blends with the illuminated ceiling, producing a comfortable field of vision. High levels of illumination without distracting and harmful glare are readily attained with this unit. Particularly recommended for offices, class-rooms and drafting rooms.

Light Control

The ceiling is illuminated by an indirect component of approximately 40% of the light output. The 60% direct component is louvered to provide 35° crosswise and 25° lengthwise shielding. Within the shielded zone maximum brightness does not exceed .3 candles per sq. in. crosswise or .6 candles per sq. in. lengthwise.

Construction

Aluminum and steel. Aluminum reflectors, louver fins, canopy, wiring channel and ends. Steel hanger stems. Plastic end ornament.

Reflectors, louver fins, wiring channel and end plates finished in white Fluracite. Ornamental star in Ivorytone. Hanger finished warm grey.

Louver is hinged and will swing down for cleaning and relamping or for access to the wiring channel. If desired, however, assembly can be completely removed by detaching two screws. Special 12 inch two-stem hanger permits easy installation. Other length hangers can be supplied where required.

Fixtures are furnished wired for 110-125 volt 60 cycle circuits with high power factor tulamp ballast and FS-4 starters. Total Watts: 95.

Maintenance

All-metal unit with no horizontal reflecting or diffusing surfaces to collect dust . . . designed to require minimum of cleaning. Lamps may be replaced without removing the louver.

Continuous Runs

For a continuous run with single-stem hangers located between sections and at the ends of the run, order one 4-foot basic unit and as many 4-foot extension sections as are needed to complete the run. Basic unit is packed with two hangers for the ends, extension section with one hanger. Wire

SINGLE STEM HANGER				TWIN-STEM HANGER			Lamp Watts	Dimensions (Inches)			Stem † Length	Ship. Wt
BASIC UNIT		EXTENSION UNIT		Cat. No.	Price Each	Stem Spacing		Length	Width	Depth		
Cat. No.	Price Each	Cat. No.	Price Each									
4060-CB	\$49.50	4060-CE	\$45.00	4060-C	\$46.50	7½"	2-40	48¾	12½	5½	12"	26
4061-CB	81.00	4061-CE	76.50	4061-C	79.50	21"	2-85	60¾	12½	5½	12"	40

†For additional lengths—prices on application.
Lamps are not included in prices.

CURTIS "4060" LUMINAIRE



The "4060"—Continuous Mounting

entrance can be made through any hanger. Allow $48\frac{3}{16}$ inches on centres for spotting hangers except at ends where $44\frac{7}{16}$ inches on centres is allowed.

If continuous fixtures are wanted with centrally located two-stem hangers, order the same unit as for individual mounting. Connectors are furnished with all units. Allow $48\frac{3}{16}$ inches on centres.

"FORTY-SIXTY-ONE" UNIT

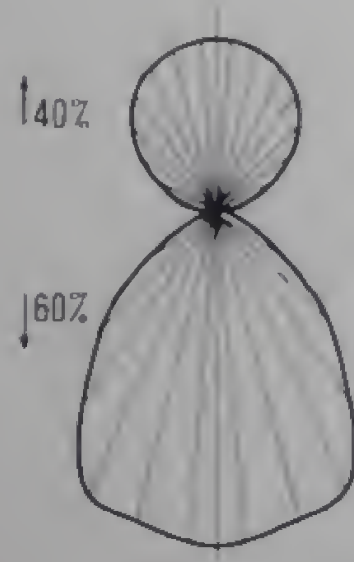
"Forty-Sixty-One" is the 5-foot, two 85-watt size of the "Forty-Sixty." This unit is identical in cross-section and construction with "Forty-Sixty" except that it is $60\frac{3}{4}$ inches long and arranged for use with two 85-watt lamps. Supplied wired with high power factor tulamp ballast and FS-64 starters. Total watts: 202.

Distribution is similar to that of the "Forty-Sixty". "Forty-Sixty-One" can also be furnished for continuous runs with single-stem hangers. Allow $60\frac{3}{16}$ inches on centres for spotting hangers except at ends of run where $56\frac{7}{16}$ inches is allowed.

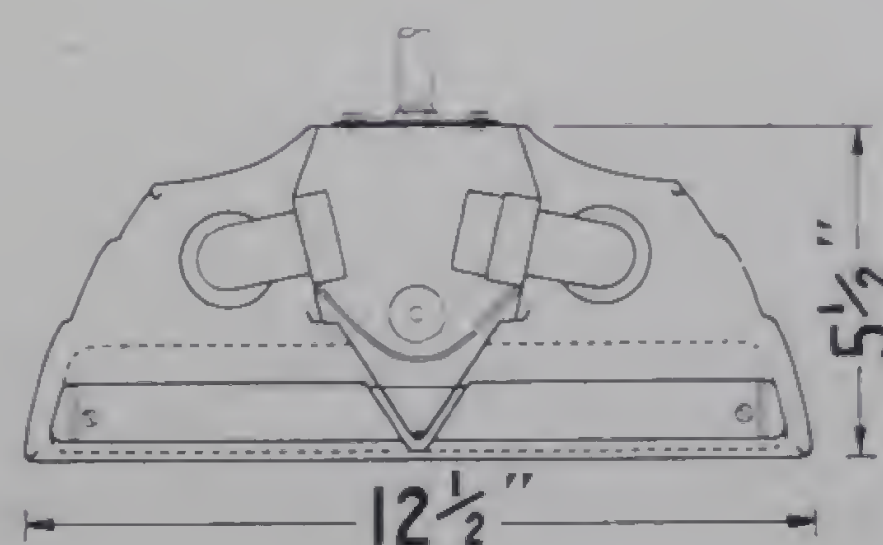
COEFFICIENTS OF UTILIZATION
"FORTY-SIXTY" LUMINAIRE ONLY

Room Index	CEILING			CEILING			CEILING	
	7'5" r			5'0" r			3'0" r	
	Walls			Walls			Walls	
	5'0" r	3'0" r	1'0" r	5'0" r	3'0" r	1'0" r	3'0" r	1'0" r
J	.30	.27	.26	.28	.26	.25	.24	.23
I	.36	.34	.33	.33	.32	.31	.30	.28
H	.40	.38	.36	.36	.35	.33	.33	.32
G	.43	.41	.39	.40	.37	.36	.35	.34
F	.46	.43	.41	.41	.39	.38	.37	.35
E	.49	.47	.45	.44	.42	.41	.39	.38
D	.52	.49	.47	.46	.45	.43	.41	.40
C	.54	.51	.49	.47	.46	.44	.42	.41
B	.56	.53	.52	.50	.48	.47	.43	.42
A	.57	.55	.53	.51	.49	.48	.45	.43

For average conditions a maintenance factor of 75% is suggested.



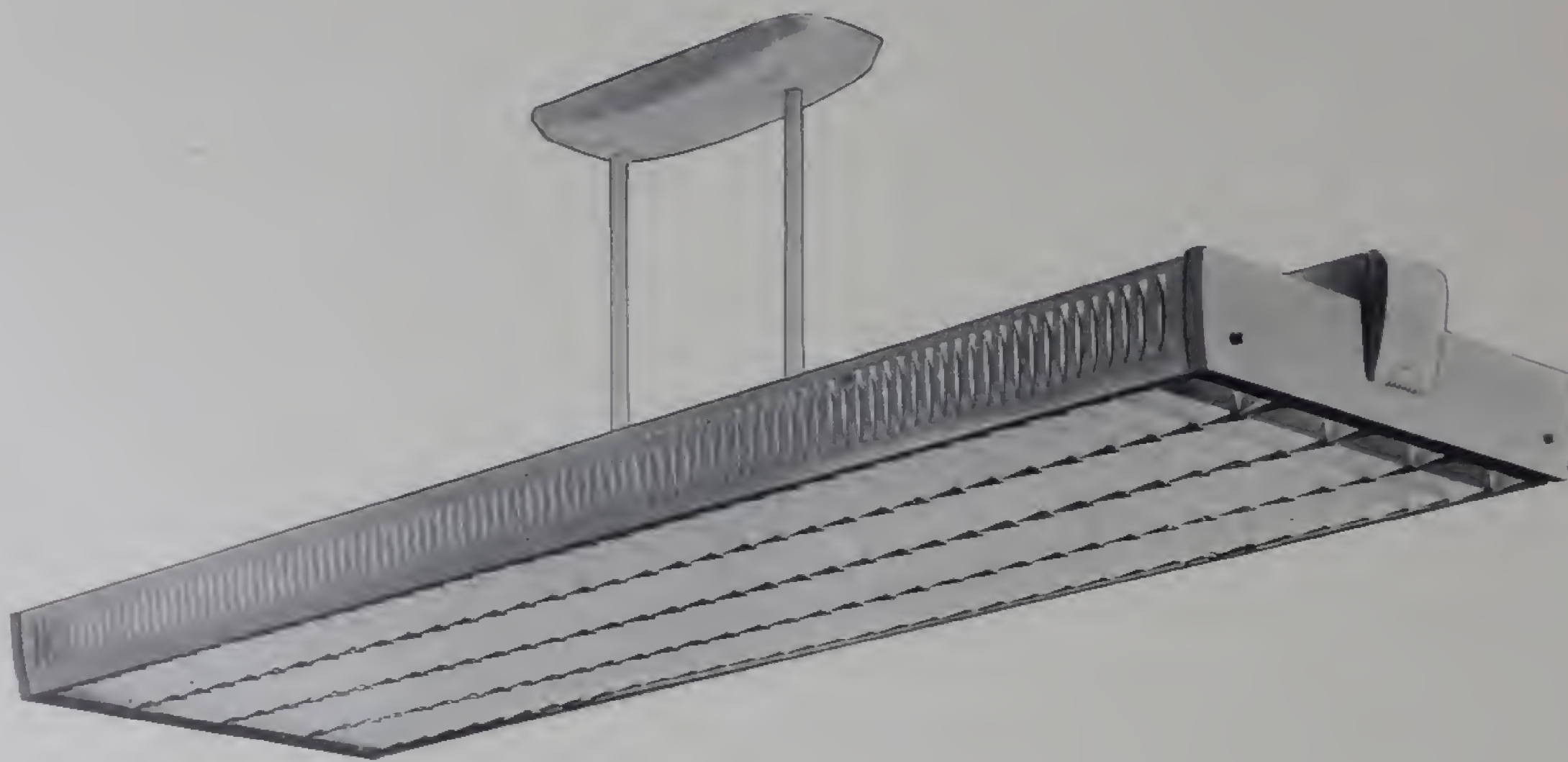
Distribution Curve



Cross Section

CANADIAN
GENERAL ELECTRIC

CURTIS "ANNIVERSARY" LUMINAIRE



The "Anniversary" Luminaire is of the general diffusing type with the top completely open for better utilization of the indirect component. The direct component is shielded 30° lengthwise and crosswise by the attractive one-piece louver.

For four 40-watt lamps per section. Recommended for both store and office lighting, the "Anniversary" Luminaire can be used either as an individual unit or in continuous runs. It is an all metal unit with a very shallow body. Side panels are designed so that lamps are louvered and reflected light is utilized to illuminate and create a decorative effect. The graceful modern appearance is enhanced by the distinctive dart pattern visible from the underside of the luminaire.

Material and Finish

Made of steel with reflecting surfaces and louver finished white Fluracite. End plates and hanger finished light grey.

Dimensions

Width, 18"; overall depth, 4½"; depth of body, 3"; length, including end ornament, 51⅜". Standard suspension is 12", but stems for 18", 24", 36" and 48" suspensions are available on request. Net weight is 33 lbs.

Auxiliary Equipment

Luminaires are supplied wired for 110-125 volt 60 cycle operation with high power factor tulamp ballasts and FS-4 starters. Total watts, 198.

Installation and Maintenance

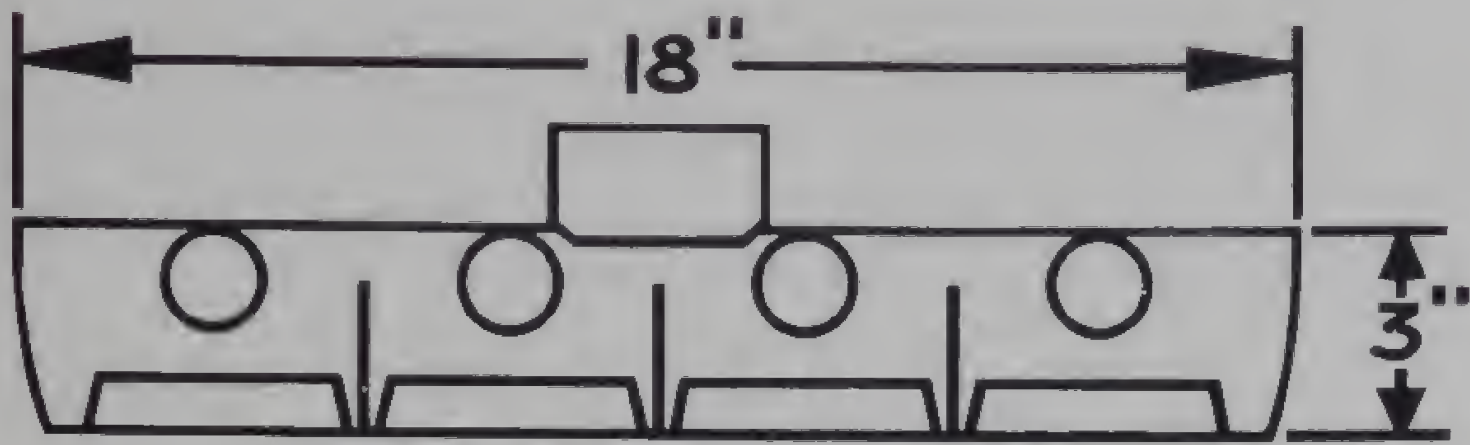
Curtis hangers permit simplified installation. Lamps and starters can be changed from above without opening the louver. Louver is hinged on both sides and is easily removed.

Since there are no horizontal reflectors or diffusing surfaces to collect dust, maintenance costs are inherently low.

SINGLE-STEM HANGER				TWIN-STEM HANGER			Lamp Watts	Dimensions (In.)			Stem† Length	Ship Wt.
BASIC UNIT		EXTENSION UNIT		Cat. No.	Price Each	Stem Spacing		Length	Width	Depth		
Cat. No.	Price Each	Cat. No.	Price Each									
51-CB	\$84.00	51-CE	\$76.00	51-C	\$79.00	7½"	4-40	51⅜	18	4½	12"	38

†For additional lengths—prices on application.
Lamps are not included in prices.

CURTIS "ANNIVERSARY" LUMINAIRE



Dimensional Data

Hangers

Luminaire is packed complete, less hanger, in a specially designed carton. Catalogue number of luminaire less hanger is 51-CLH.

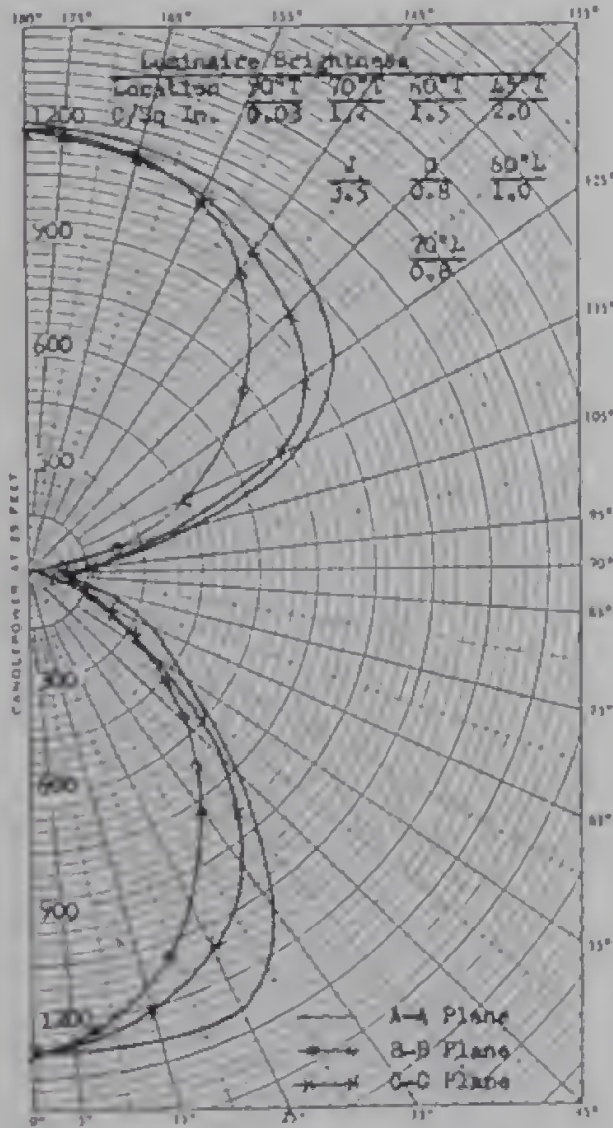
No. 51-CB consists of 51-CLH plus one No. 629 basic hanger set (comprises two single stem hangers and fittings complete in one carton).

No. 51-CE consists of 51-CLH plus one No. 630 single stem hanger, packed in separate carton.

No. 51-C consists of 51-CLH plus one No. 631 two-stem hanger, packed in separate carton.

Illumination Data

The photometric curve is reproduced below. The Coefficients of Utilization table given is derived from this curve.



Distribution Curve

Candlepower Distribution

The candlepower distribution of the "51" luminaire is such that only 5.4% of the bare lamp lumens are delivered in the 60°-90° zone. By keeping light in this zone at a low value, seeing comfort is greatly increased.

Efficiency

Light output of the "51" is such that this unit is classified as a "general diffuse lighting type fluorescent luminaire". The "51" has an overall efficiency of 78.3% of bare lamp lumens.

Brightness

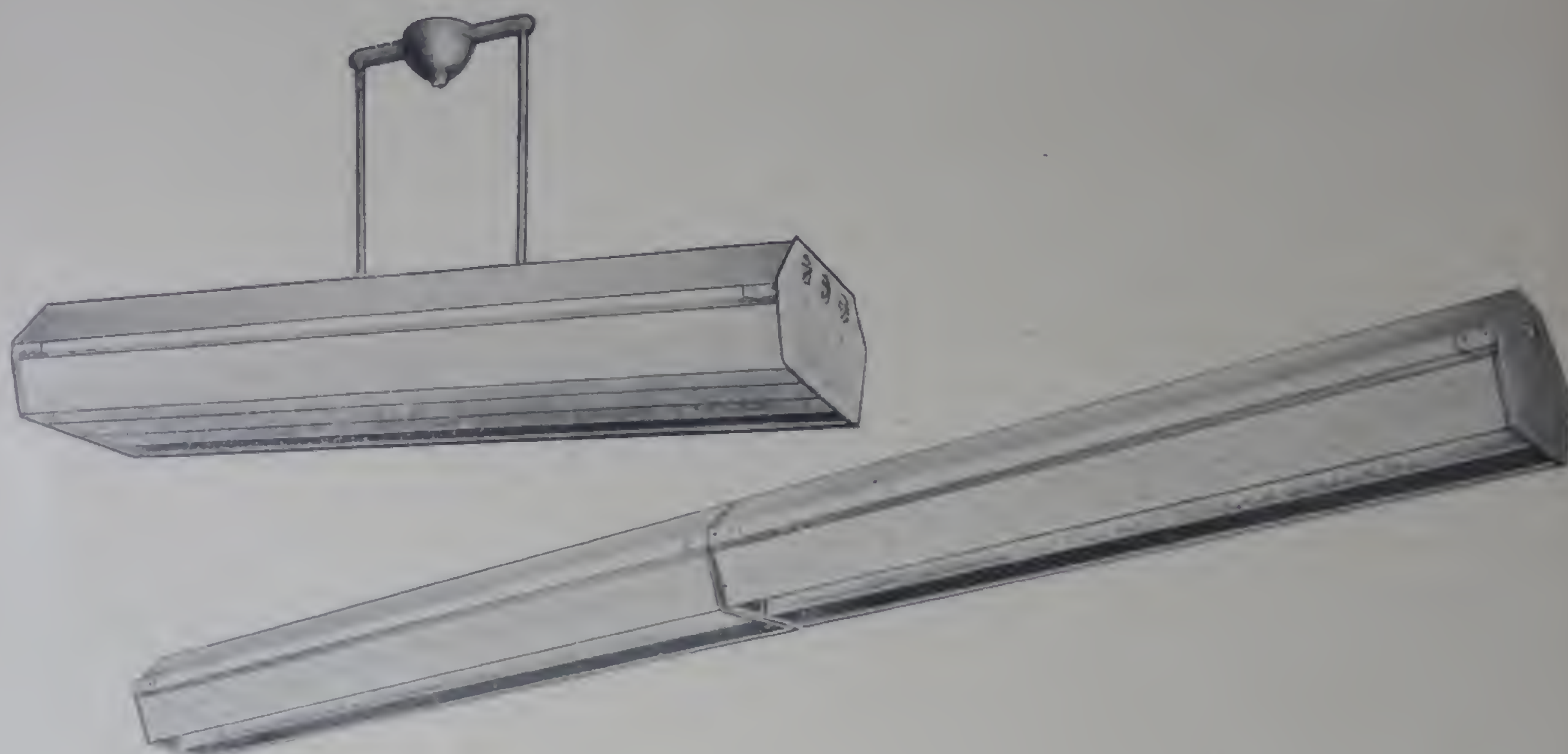
The maximum brightness within the shielded zone of the "51" luminaire is 1.5 candles per square inch (678 foot-lamberts).

COEFFICIENTS OF UTILIZATION

Room Index	Ceiling 75%			Ceiling 50%			Ceiling 30%	
	Walls			Walls			Walls	
	50%	30%	10%	50%	30%	10%	30%	10%
J	.26	.22	.21	.22	.20	.19	.18	.17
I	.32	.28	.27	.28	.25	.23	.22	.21
H	.35	.32	.30	.30	.28	.27	.25	.23
G	.39	.36	.33	.34	.31	.29	.27	.26
F	.42	.38	.35	.35	.33	.31	.29	.27
E	.45	.42	.39	.39	.36	.34	.31	.30
D	.49	.45	.43	.41	.39	.37	.33	.32
C	.51	.48	.45	.43	.40	.39	.34	.33
B	.54	.51	.49	.45	.43	.41	.36	.35
A	.56	.53	.51	.47	.44	.43	.38	.36

For average conditions a maintenance factor of 75% is suggested.

CURTIS "TRANQUILUX" LUMINAIRE



The Tranquilux and Tranquilouver are attractive, modern luminaires available for two, three or four 40-watt lamps. Recommended for use in offices, stores, schools and draughting rooms. Scientifically engineered for maximum efficiency and comfortable vision, they provide excellent working conditions at moderate cost to promote speed, accuracy, and increased production.

Tranquilux

To produce smooth, even, blended illumination the lamps are operated out of phase so that while some are at maximum brilliance others are reaching

minimum. In addition, frosted glass mixing shields are placed between the lamps to reduce brightness and further decrease flicker. For best results on 25 cycle circuits, lamps with coated ends should be used and where 3-phase power is available adjacent units should be connected to alternate phases. Lamps are well shielded from any normal transverse viewing angle by ribbed glass diffusing panels. Ease of maintenance is assured by the placing of all reflecting and diffusing elements in planes which minimize dust adhesion. All of these important surfaces are easy to clean and their hardness resists scratching or deterioration.

60 CYCLE		25 CYCLE		Lamp Watts	Dimensions (Inches)		Shipping Weight	
Cat. No.	Price Each	Cat. No.	Price Each		Width	Height	60 Cyc.	25 Cyc.
6227-C	\$49.00	6227-F	\$55.00	2-40	9	7	28	31
		6237-YF*	87.00					
6237-C	68.00	6237-DF†	93.00	3-40	12 1/4	7	37	50
6247-C	76.00	6247-F	96.00	4-40	16	7	58	66

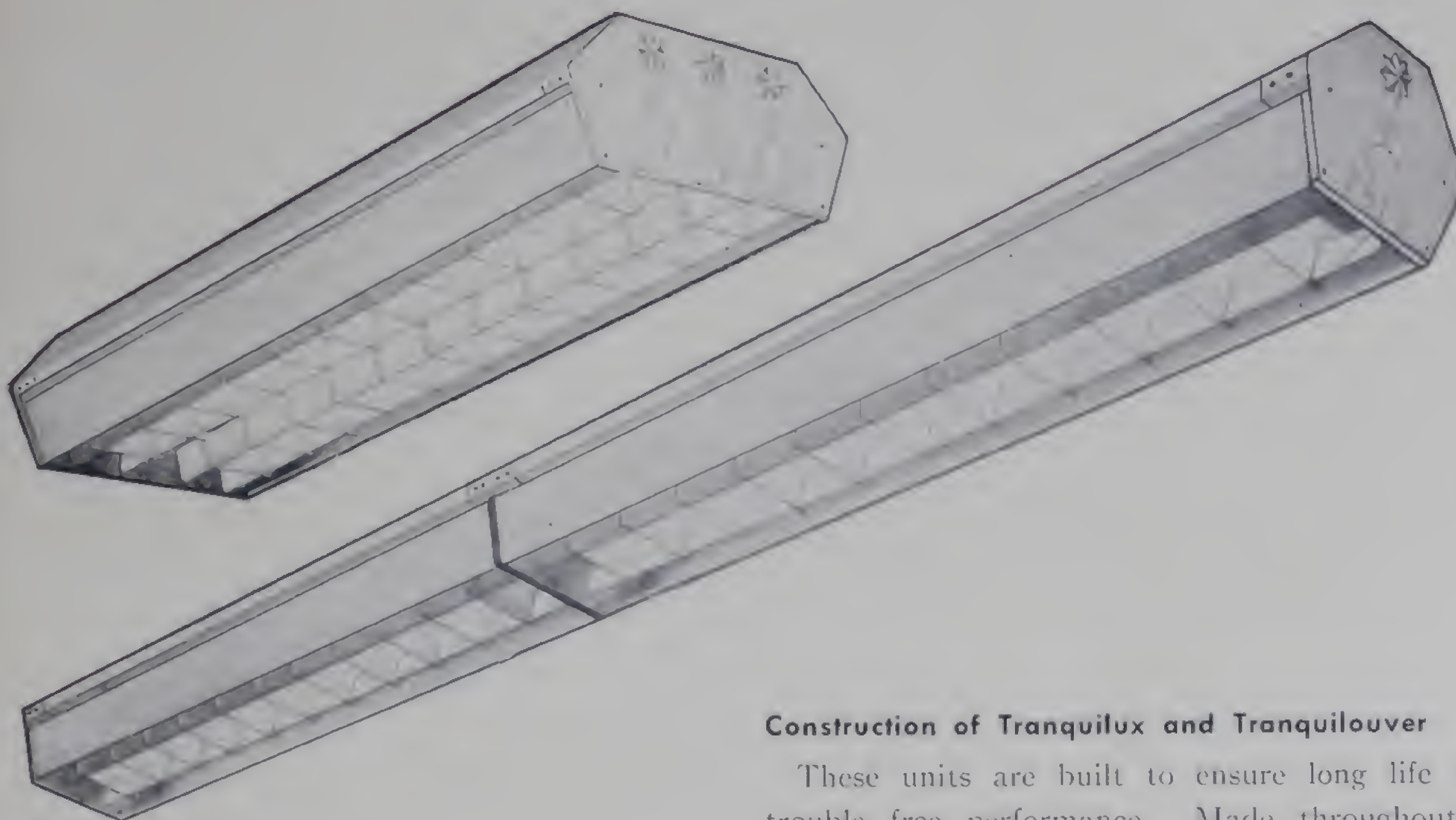
*For 120 volt, 3 Phase—for end to end use in pairs of units only.

†For 208 volt, 3 Phase.

Lamps are not included in prices.

Hangers not included—See Page 62.

CURTIS "TRANQUILOUVER" LUMINAIRE



Tranquilouver

This luminaire is similar to the Tranquilux with the exception that it is equipped with louvers instead of glass mixing shields. These louvers effectively conceal lamps from ordinary view, providing 35° crosswise and 25° lengthwise shielding. Scientifically designed with careful attention to proper mixing, they tend to reduce perceptible flicker. Surfaces are correctly slanted to lower brightness and to give a uniform large area source of illumination. Louvers may be purchased separately and will fit existing installations of Tranquilux luminaires which have the new end plate with perforated pattern.

Construction of Tranquilux and Tranquilouver

These units are built to ensure long life and trouble free performance. Made throughout of 18-gauge aluminum. All units may be mounted in continuous runs if desired. Simply remove ornaments and bolts from end plates, couple them together with chase nipple and locknut and replace bolts. Fixtures are wired complete with FS-4 starters and approved high power factor ballasts.

Finish

Finish is in Fluracite. This reflecting surface is a synthetic polymerizing high temperature baked enamel, glossy white and mineral hard — especially developed to maintain and not distort the colour value of the fluorescent lamp. Fluracite does not peel, chip or check even under severe conditions, yet possesses unusually high reflectivity and is easily cleaned with soap and water.

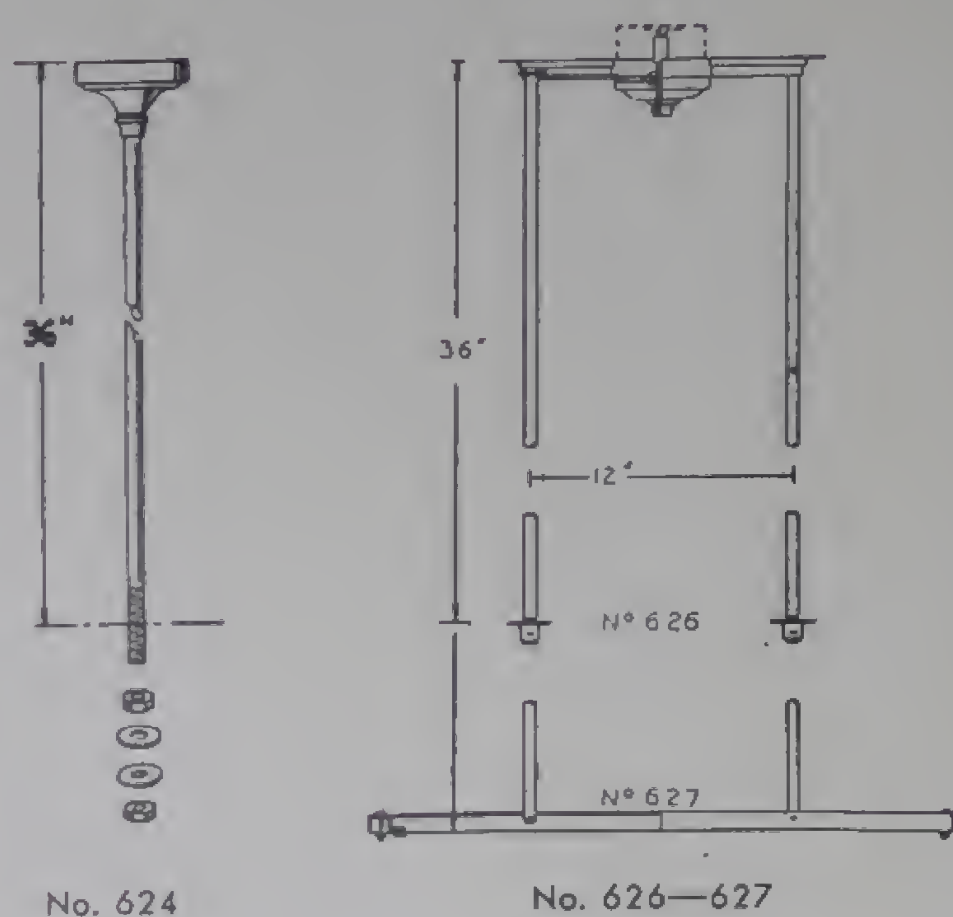
60 CYCLE		25 CYCLE		Lamp Watts	Dimensions (Inches)		Shipping Weight	
Cat. No.	Price Each	Cat. No.	Price Each		Width	Height	60 Cyc.	25 Cyc.
6227-LC	\$49.00	6227-LF	\$55.00	2-40	9	7	26	29
		6237-LYF*	87.00					
6237-LC	68.00	6237-LDF†	93.00	3-40	12 1/4	7	35	52
6247-LC	76.00	6247-LF	96.00	4-40	16	7	54	62

*For 120 volt, 3 Phase—for end to end use in pairs of units only.
†For 208 volt, 3 Phase.
Lamps are not included in prices.

Hangers not included—See Page 62.

**CANADIAN
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CURTIS "TRANQUILUX" AND "TRANQUILOUVER" LUMINAIRES



Methods of Suspension

For normal ceiling heights (11' 6" and lower) mount luminaires directly against ceiling. On higher ceilings, they may be suspended if desired. For good appearance and lighting results, the top of the housing should be from 10' to 11' above the floor.

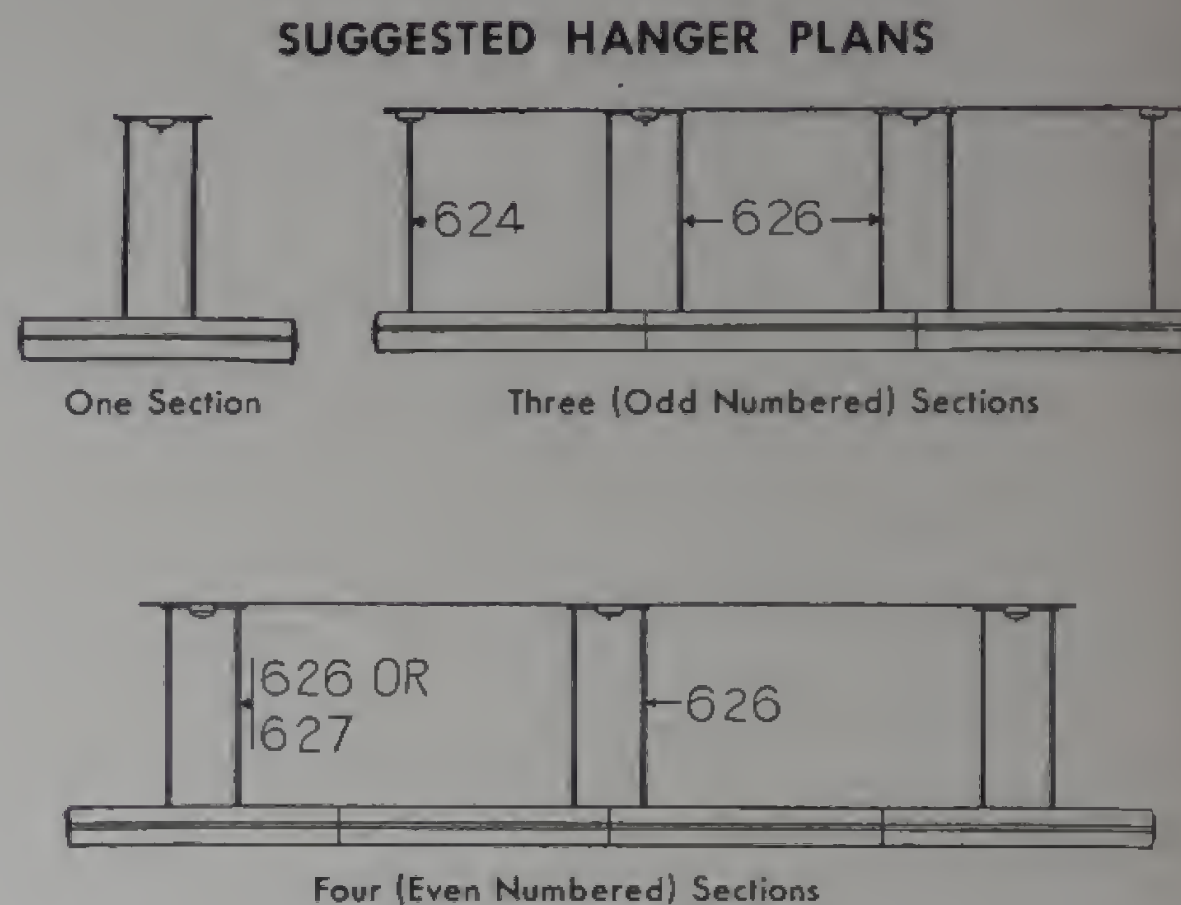
One-Stem Hanger—Catalogue No. 624

This hanger is composed of a single steel stem 36" long with a self-aligning canopy fitting. The lower end is threaded, and a locknut, two heavy washers and clamping nut are included. A knockout in the top of the luminaire is provided for fastening to stem. Finish, aluminum lacquer.

Use at end of row in continuous runs containing an odd number of luminaires.

Two-Stem Hangers—Catalogue Nos. 626 and 627

These hangers consist of a cast canopy bar and

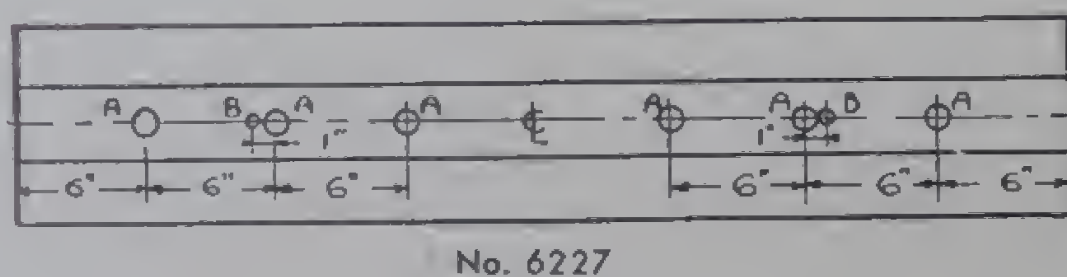


two steel tube stems. Stems are held at top and bottom by heavy cotter pins. Standard suspension is 36" from ceiling to top of luminaire which can be shortened easily on the job by cutting off stems to new length and drilling $\frac{1}{4}$ " hole in each stem.

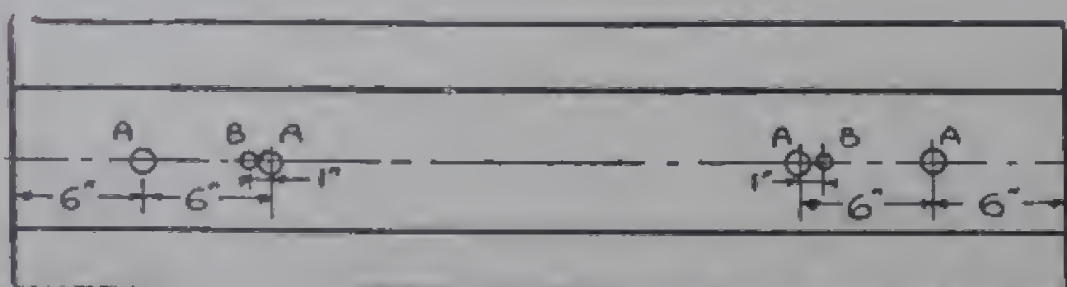
Use No. 626 hanger for Nos. 6227-C, 6227-LC, 6247-C, 6247-LC, 6247-F and 6247-LF when hanger is at centre of unit or on all units when hanger is over junction between two units. Use No. 627 hanger for Nos. 6227-F, 6227-LF, 6237-C and 6237-LC. With No. 626 Hanger, be sure bottom plates are inside housing in position shown. Finish, aluminum lacquer.

Cat. No.	Price Each	Type	Length	Ship Wt
624	\$ 5.00	One-Stem	36"	4
626	9.20	Two-Stem	36"	7
627	10.60	Two-Stem	36"	8

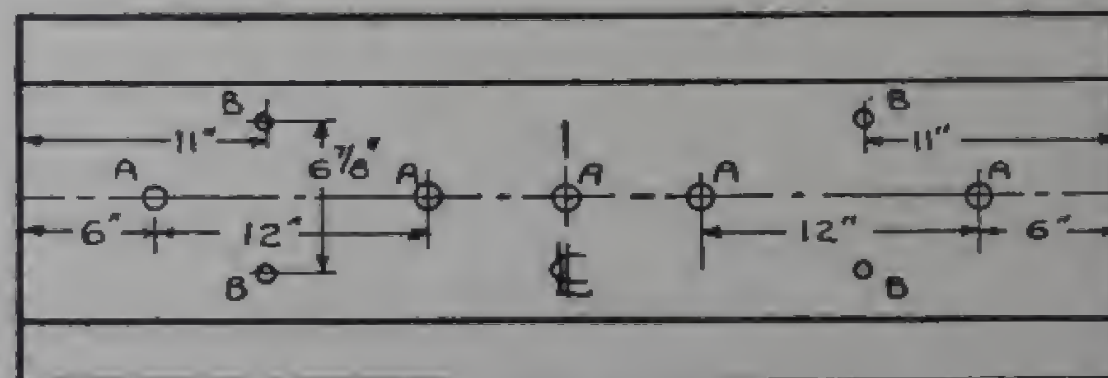
LOCATION OF MOUNTING HOLES



No. 6227



No. 6237



No. 6247

Knockouts and Supports

Knockouts are provided in the top of all luminaires for use as wire entrance or for attachment to hangers. Quarter-inch holes ("B") are used for toggle or expansion bolts when units are mounted directly on the ceiling. "A" indicates location of knockouts for hangers.

CURTIS "TRANQUILUX" AND "TRANQUILOUVER" LUMINAIRES

ILLUMINATION PERFORMANCE

Footcandles for Tranquilux may be calculated from the charts or by the "Coefficient of Utilization" method, using the table directly below.

COEFFICIENTS OF UTILIZATION

Room Index	Ceiling 75%			Ceiling 50%			Ceiling 30%	
	Walls			Walls			Walls	
	50%	30%	10%	50%	30%	10%	30%	10%
J	.29	.25	.22	.29	.25	.22	.24	.22
I	.37	.32	.30	.36	.32	.29	.32	.29
H	.40	.36	.34	.39	.36	.34	.35	.33
G	.44	.40	.37	.42	.39	.37	.38	.36
F	.47	.43	.40	.45	.42	.39	.41	.39
E	.51	.47	.44	.49	.46	.43	.45	.43
D	.55	.51	.48	.53	.50	.47	.49	.47
C	.57	.52	.49	.54	.51	.49	.51	.48
B	.60	.56	.53	.57	.54	.52	.53	.52
A	.61	.58	.55	.59	.56	.54	.55	.53

The application of continuous fluorescent sources to general lighting problems is somewhat different than planning for luminaires on conventional outlet spacing. For this reason the footcandle charts shown have been prepared.

Constant footcandle values are obtained under a continuous section at points more than 12 feet in from either end. At the end of a long section, the values are one-half of those under the centre of a long section.

The chart shows how the intensities under single and continuous sections vary with mounting height. It is easy to determine the intensities between continuous sections by the use of the data given.

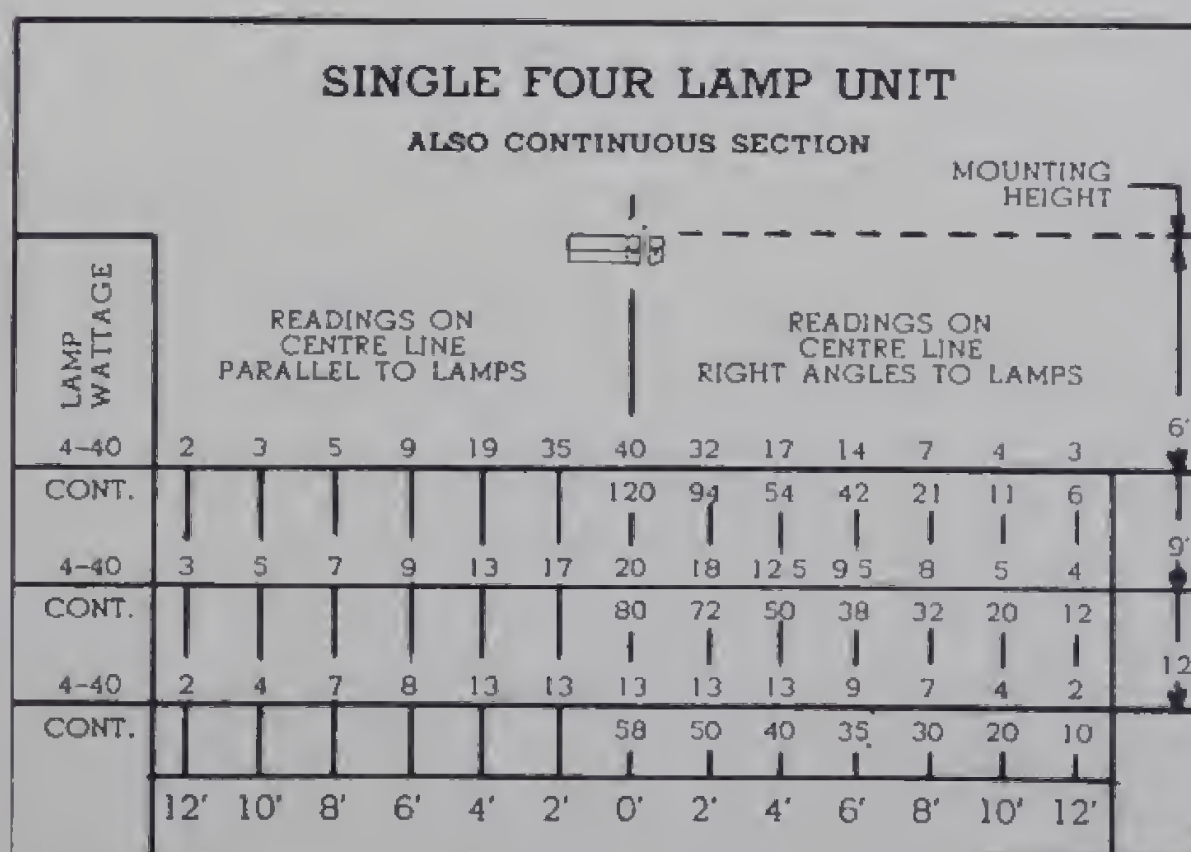
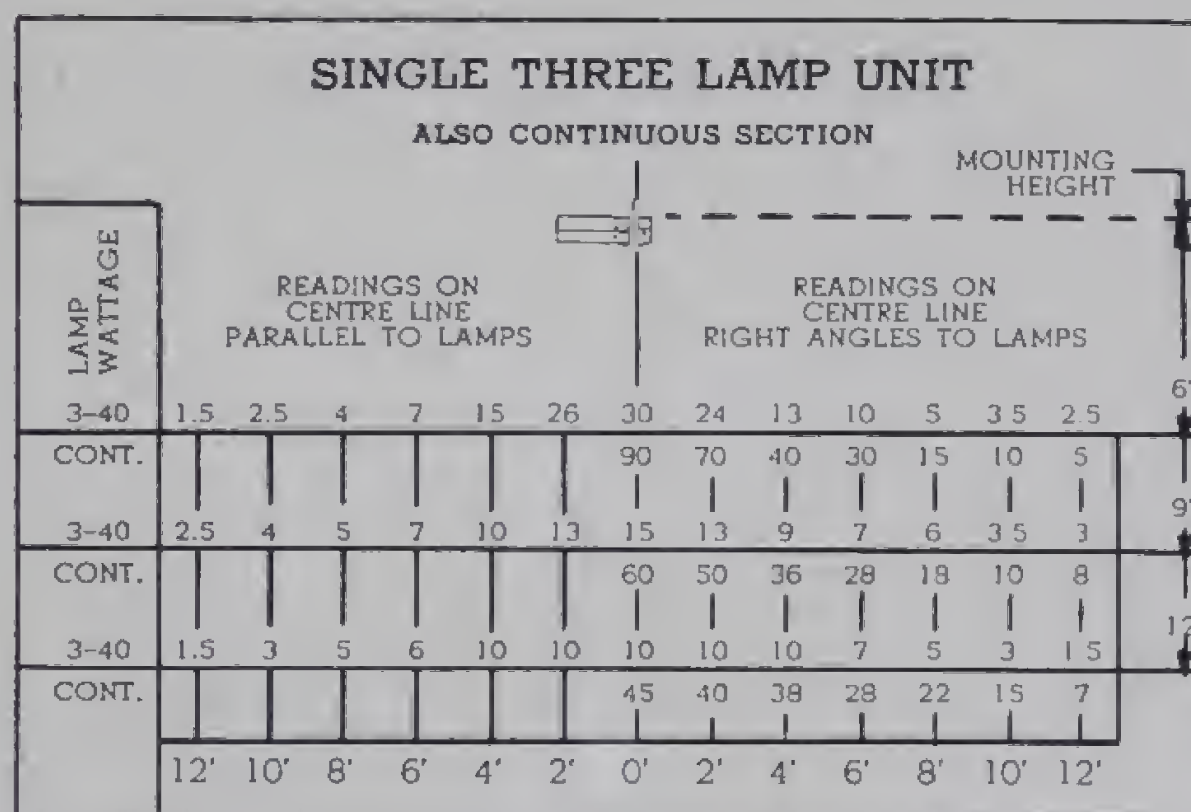
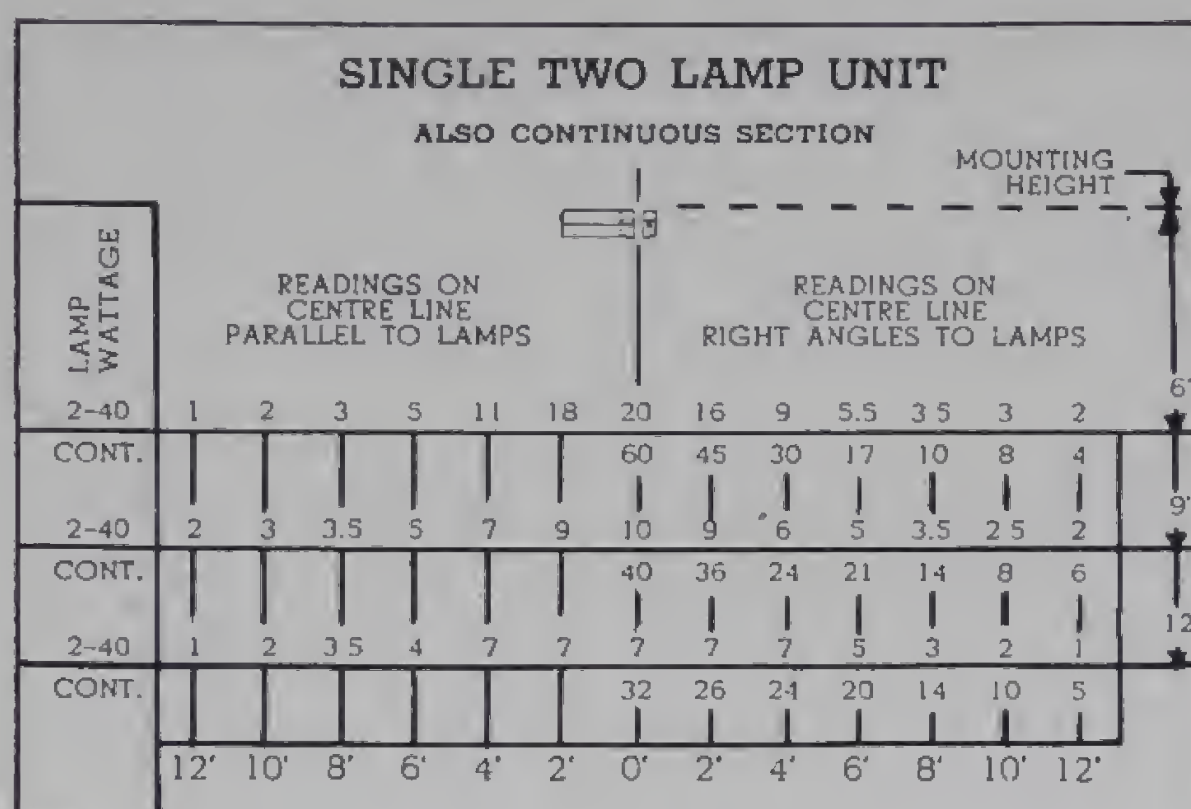
The charts have been compiled from tests on units mounted on a fairly light ceiling and are based on 3500° white lamps. For 4500° white lamps, decrease values by 10 per cent.

For daylight lamps decrease values by 15 per cent.

A maintenance factor of 75 per cent is suggested. This means the footcandle values over a period of time will be 75 per cent of those given in the tables.

For large interiors with average ceiling heights each watt (including ballasts), per square foot of floor area, will produce approximately 15 to 20 footcandles including a depreciation factor. For smaller rooms for each watt per square foot an average of 12 to 15 footcandles will result.

APPROXIMATE FOOTCANDLE VALUES



CURTIS TROFFERS



Continuous Row Installation of Louvered Troffers

These troffers are of two general types. They are equipped with side and end flanges and are easy to install in any type ceiling including T-Bar construction; however, the T-Bar clips are not used to support the unit.

General Construction Features

Wireway is suspended from "U" shape support brackets which are readily adjustable for thickness of framing and plaster or acoustical material. Reflectors are assembled to wireway with wing nuts and complete unit is drawn up to ceiling with long bolts. Sections can be wired together in lengths convenient for installation and installed as a unit. In general, one wire entrance will be sufficient for the entire run.

Dimensions

Each unit is exactly 48" long and fits into a 12" slot in the ceiling. This permits exact alignment of reflectors with acoustical ceiling patterns. Width at bottom over flanges, 13". Depth above finished

ceiling required for recessing, 9 $\frac{1}{4}$ ".

Carton Packed

All units, basic and extension, are unit carton packed complete for easy storage.

LOUVERED TROFFERS

These troffers are carefully designed for high efficiency and low brightness. Reflectors, wireway and louvers are made of heavy gauge aluminum with Fluracite (white) finish. Louvers are of the swing down type and provide shielding 35° cross-wise and 25° lengthwise.

GLASS BOTTOM TROFFERS

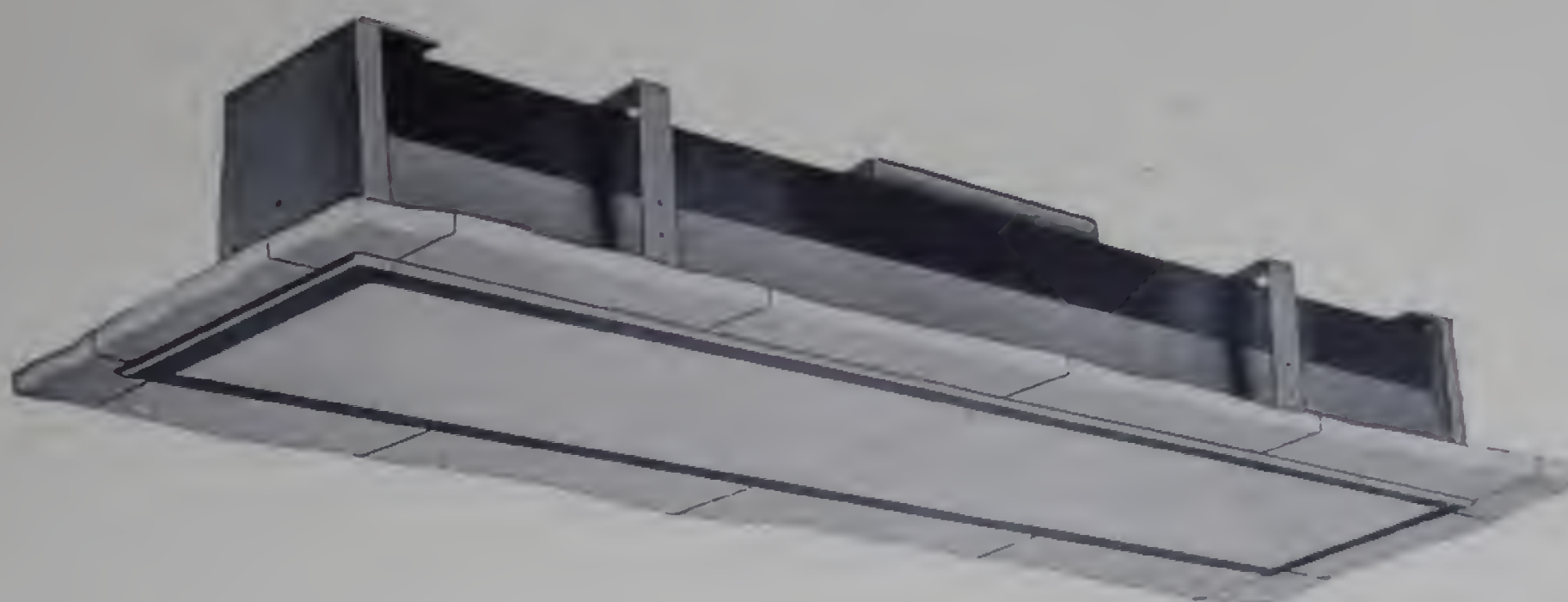
With Fluracite reflector and sliding glass panels. The general construction of these units is the same as the louvered types. Glass panels are of diffusing glass arranged to slide over each other for maintenance. Panels can be easily removed when necessary.

LOUVERED TROFFERS

Cat. No.	Price Each	Lamp Watts	Description	Line Voltage	Approx. Watts Consumed	Shipping Weight
60 CYCLE						
1722-C	\$50.00	2-40	Basic	110-125	97	36
1722-CE	48.00	2-40	Extension	110-125	97	36
1723-C	68.00	3-40	Basic	110-125	143	40
1723-CE	66.00	3-40	Extension	110-125	143	40
25 CYCLE						
1722-F	\$60.00	2-40	Basic	110-125	106	40
1722-FE	58.00	2-40	Extension	110-125	106	40
*1723-YF	90.00	3-40	Basic	110-125	159	42
*1723-YFE	88.00	3-40	Extension	110-125	159	42
1723-DF	86.00	3-40	Basic	208†	140	42
1723-DFE	84.00	3-40	Extension	208†	140	42

*For end to end use in pairs of units only. Single phase or 3 phase operation.
†3 phase.
Lamps are not included in prices.

CURTIS TROFFERS



Glass Bottom Troffer

COEFFICIENTS OF UTILIZATION
Catalogue No. 1722-C
Fluracite Reflector with Louver

Room Index	Ceiling 75%			Ceiling 50%			Ceiling 30%	
	Walls			Walls			Walls	
	50%	30%	10%	50%	30%	10%	30%	10%
J	.35	.32	.31	.34	.32	.31	.32	.30
I	.42	.40	.39	.41	.40	.39	.39	.38
H	.45	.44	.43	.44	.43	.42	.43	.41
G	.48	.47	.46	.47	.46	.45	.46	.44
F	.51	.49	.48	.49	.48	.47	.48	.47
E	.53	.52	.51	.52	.51	.50	.50	.49
D	.56	.54	.53	.55	.54	.52	.53	.52
C	.58	.56	.55	.56	.55	.54	.54	.53
B	.59	.57	.56	.57	.56	.55	.55	.54
A	.60	.59	.58	.58	.57	.56	.56	.55

For average conditions a maintenance factor of 75% is suggested.

NOTE: The above table may also be used for 3-40 watt units if the final foot candle values are increased by 35% for the additional lamp, since the overall efficiency of two lamp units is slightly greater than that of three lamp units.

COEFFICIENTS OF UTILIZATION
Catalogue No. 1752-C
Fluracite Reflector with Glass Panels

Room Index	Ceiling 75%			Ceiling 50%			Ceiling 30%	
	Walls			Walls			Walls	
	50%	30%	10%	50%	30%	10%	30%	10%
J	.31	.28	.27	.31	.28	.27	.28	.26
I	.38	.36	.34	.37	.35	.34	.35	.33
H	.41	.39	.38	.40	.38	.37	.39	.37
G	.44	.43	.41	.42	.41	.40	.41	.40
F	.46	.45	.44	.45	.43	.42	.43	.42
E	.49	.48	.47	.48	.46	.45	.46	.45
D	.52	.50	.49	.50	.48	.47	.48	.47
C	.54	.52	.50	.52	.50	.49	.49	.48
B	.55	.53	.52	.53	.52	.51	.51	.50
A	.56	.54	.53	.54	.53	.52	.52	.51

For average conditions a maintenance factor of 75% is suggested.

NOTE: The above table may also be used for 3-40 watt units if the final foot candle values are increased by 35% for the additional lamp, since the overall efficiency of two lamp units is slightly greater than that of three lamp units.

GLASS BOTTOM TROFFERS

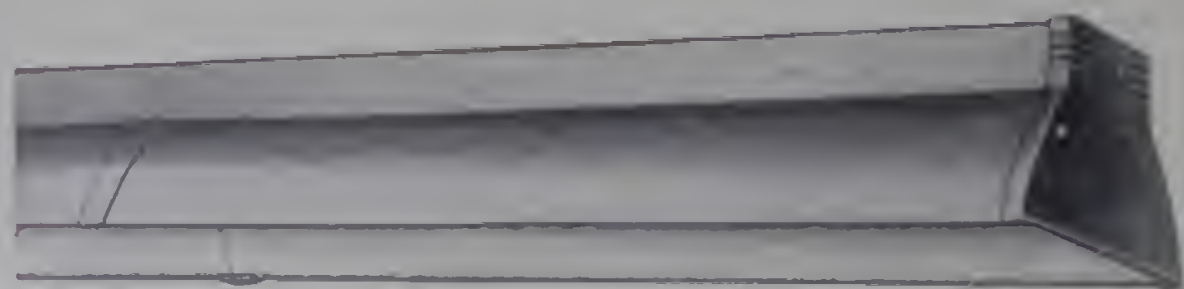
Cat. No.	Price Each	Lamp Watts	Description	Line Voltage	Approx. Watts Consumed	Shipping Weight
60 CYCLE						
1752-C	\$44.00	2-40	Basic	110-125	97	40
1752-CE	42.00	2-40	Extension	110-125	97	40
1753-C	62.00	3-40	Basic	110-125	143	44
1753-CE	60.00	3-40	Extension	110-125	143	44
25 CYCLE						
1752-F	\$55.00	2-40	Basic	110-125	106	44
1752-FE	53.00	2-40	Extension	110-125	106	44
*1753-YF	84.00	3-40	Basic	110-125	159	46
*1753-YFE	82.00	3-40	Extension	110-125	159	46
1753-DF	80.00	3-40	Basic	208†	140	46
1753-DFE	78.00	3-40	Extension	208†	140	46

*For end to end use in pairs of units only. Single phase or 3 phase operation.

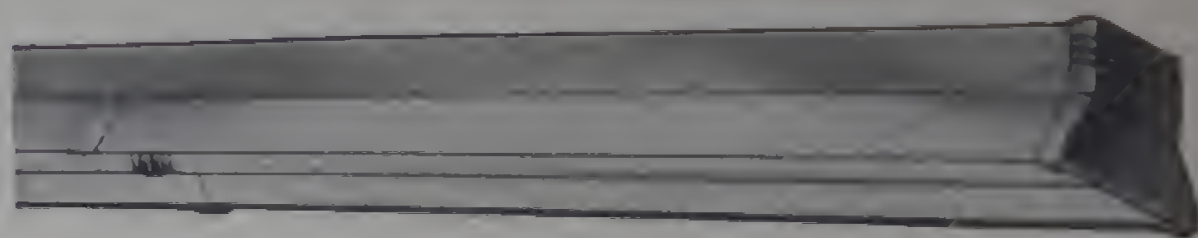
†3 phase.

Lamps are not included in prices.

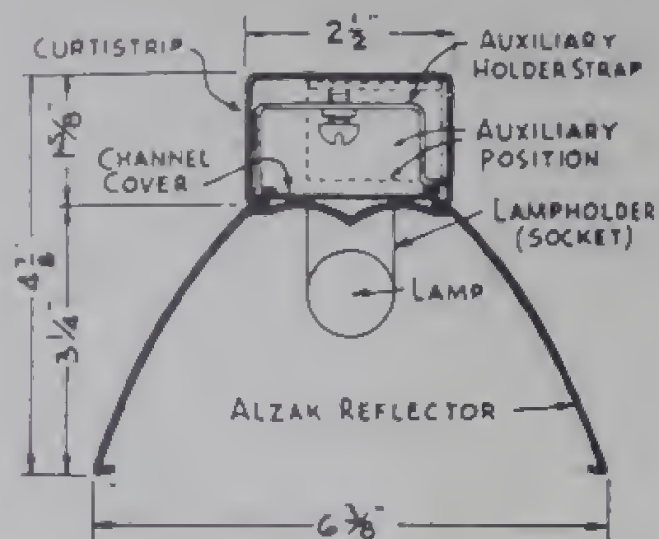
FLUORESCENT CURTISTRIP



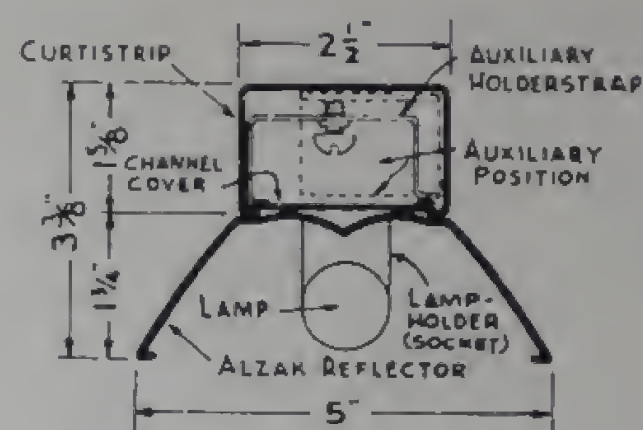
Semi-Concentrating Reflector Fixture



Distributing Reflector Fixture



Cross Section



Cross Section

Semi-Concentrating Reflector Fixtures have deep symmetrical reflectors. They are intended for general or localized direct lighting over counters, cases and work tables.

Distributing Reflector Fixtures have shallow symmetrical reflectors which spread the light over a wide area. They are for general direct lighting, local lighting when mounted below eye level, and for indirect lighting.

Directional Reflector Fixtures have asymmetrical light distribution. They are for lighting sloping and vertical surfaces and for show window and cove applications.

Reflectorless Fixtures have aluminum-bronze finish channel covers. They are suitable for certain strip lighting and decorative applications.

Construction

Channel is made of 20 gauge steel. Reflectors are Alzak aluminum, except items marked S, which are supplied with steel reflectors only — fluracite reflecting surface.

Decorative Type — For exposed-to-view mounting. Satin Silvertone finish, includes decorative end caps and reflector end plates.

Economy Type — For concealed installation and use where a fine finish is not so important. Rust-resisting plated finish, plain channel end caps (No. 46 extended end caps for making conduit connection), and open reflector ends.

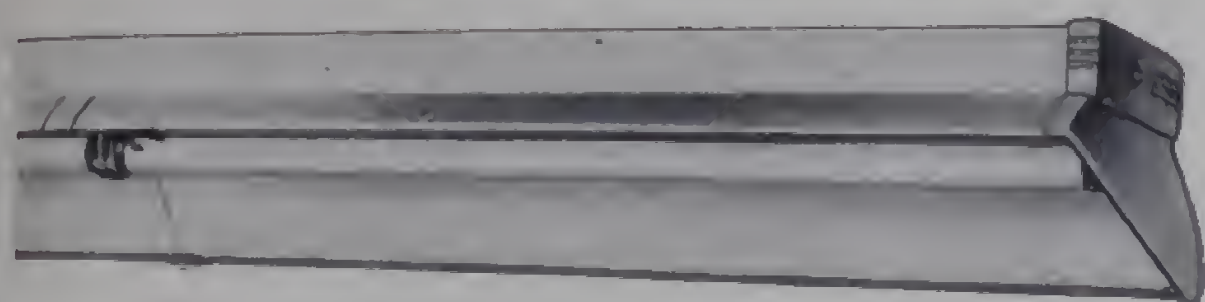
Reflector end-plates finished in Satin Silvertone may be ordered separately for Economy Type Fixtures:

Cat. No.	Price Each	Type	Std. Pkg
502	\$1.80	Deep Symmetrical	10
503	1.45	Shallow Symmetrical	10
504	2.00	Asymmetrical (right end)	10
505	2.00	Asymmetrical (left end)	10

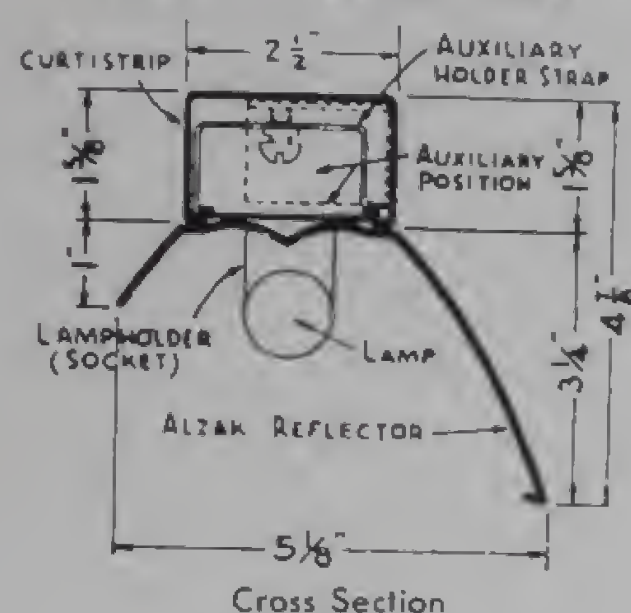
How to Order Continuous Runs

Extension units (see tables on next page) for Fluorescent CurtiStrip permit making up continuous runs with any number of lamps. Basic units come in lengths up to nine feet. When a section more than nine feet long is desired, the run is made up with one Basic unit and one or more Extension units. The required Extension units should be selected first and the Basic unit used to complete the run.

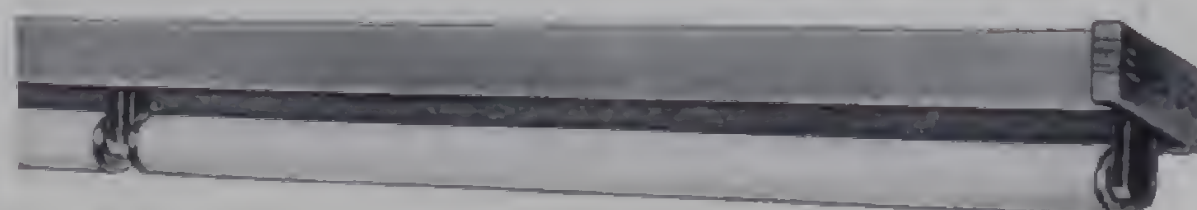
FLUORESCENT CURTISTRIP



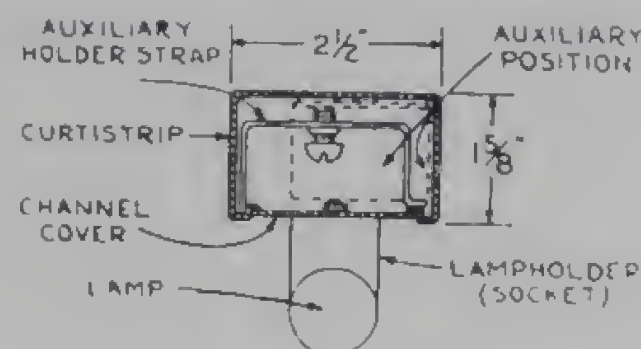
Directional Reflector Fixture



Cross Section



Reflectorless Fixture



Cross Section

Length	Lamp Watts	BASIC UNITS		EXTENSION UNITS	
		Cat. No.	Price Each	Cat. No.	Price Each

SEMI-CONCENTRATING REFLECTOR FIXTURE

Decorative Type

1'-6"	1-15	201-CS	\$24.30	.....	.....
2'-0"	1-20	208-CS	29.35	.....	.....
3'-0"	1-30	212-CS	31.30	.....	.....
4'-0"	1-40	215-CS	31.50	.....	.....
6'-0"	2-30	213-CS	57.05	.....	.....
8'-0"	2-40	216-CS	57.25	216-ECS	\$49.50
9'-0"	3-30	214-CS	82.80	214-ECS	75.05

Economy Type

1'-6"	1-15	427-C	\$19.25	.....	.....
2'-0"	1-20	428-C	23.75	.....	.....
3'-0"	1-30	429-C	26.10	.....	.....
4'-0"	1-40	430-CS	26.30	.....	.....
6'-0"	2-30	412-C	51.50	.....	.....
8'-0"	2-40	413-CS	51.65	413-ECS	\$49.85
9'-0"	3-30	415-C	76.70	415-EC	74.90

DISTRIBUTING REFLECTOR FIXTURE

Decorative Type

1'-6"	1-15	327-CS	\$22.85	.....	.....
2'-0"	1-20	333-C	25.00	.....	.....
3'-0"	1-30	337-C	30.95	.....	.....
4'-0"	1-40	341-CS	29.15	.....	.....
6'-0"	2-30	339-C	56.95	.....	.....
8'-0"	2-40	342-CS	53.30	342-ECS	\$47.90
9'-0"	3-30	340-C	83.15	340-EC	77.75

Economy Type

1'-6"	1-15	432-CS	\$18.55	.....	.....
2'-0"	1-20	433-CS	18.70	.....	.....
3'-0"	1-30	434-CS	26.45	.....	.....
4'-0"	1-40	435-CS	24.65	.....	.....
6'-0"	2-30	455-C	52.20	.....	.....
8'-0"	2-40	456-CS	48.40	456-ECS	\$46.60
9'-0"	3-30	458-C	77.75	458-EC	75.90

Fixtures are for 110-125 volt, 60 cycle operation. Supplied assembled and wired, complete with high power factor ballast, lampholders and starter. Lamps are not included in prices.

Length	Lamp Watts	BASIC UNITS		EXTENSION UNITS	
		Cat. No.	Price Each	Cat. No.	Price Each

DIRECTIONAL REFLECTOR FIXTURE

Decorative Type

1'-6"	1-15	292-C	\$24.50	.....	.....
2'-0"	1-20	298-C	26.65	.....	.....
3'-0"	1-30	302-CS	31.25	.....	.....
4'-0"	1-40	306-CS	31.70	.....	.....
6'-0"	2-30	304-CS	56.70	.....	.....
8'-0"	2-40	308-CS	66.25	308-ECS	\$60.85
9'-0"	3-30	305-CS	82.05	305-ECS	76.70

Economy Type

1'-6"	1-15	437-C	\$19.10	.....	.....
2'-0"	1-20	438-C	21.25	.....	.....
3'-0"	1-30	439-CS	25.75	.....	.....
4'-0"	1-40	442-CS	26.10	.....	.....
6'-0"	2-30	465-CS	50.75	.....	.....
8'-0"	2-40	466-CS	60.30	466-ECS	\$58.50
9'-0"	3-30	468-CS	75.60	468-ECS	73.80

REFLECTORLESS FIXTURE

Decorative Type

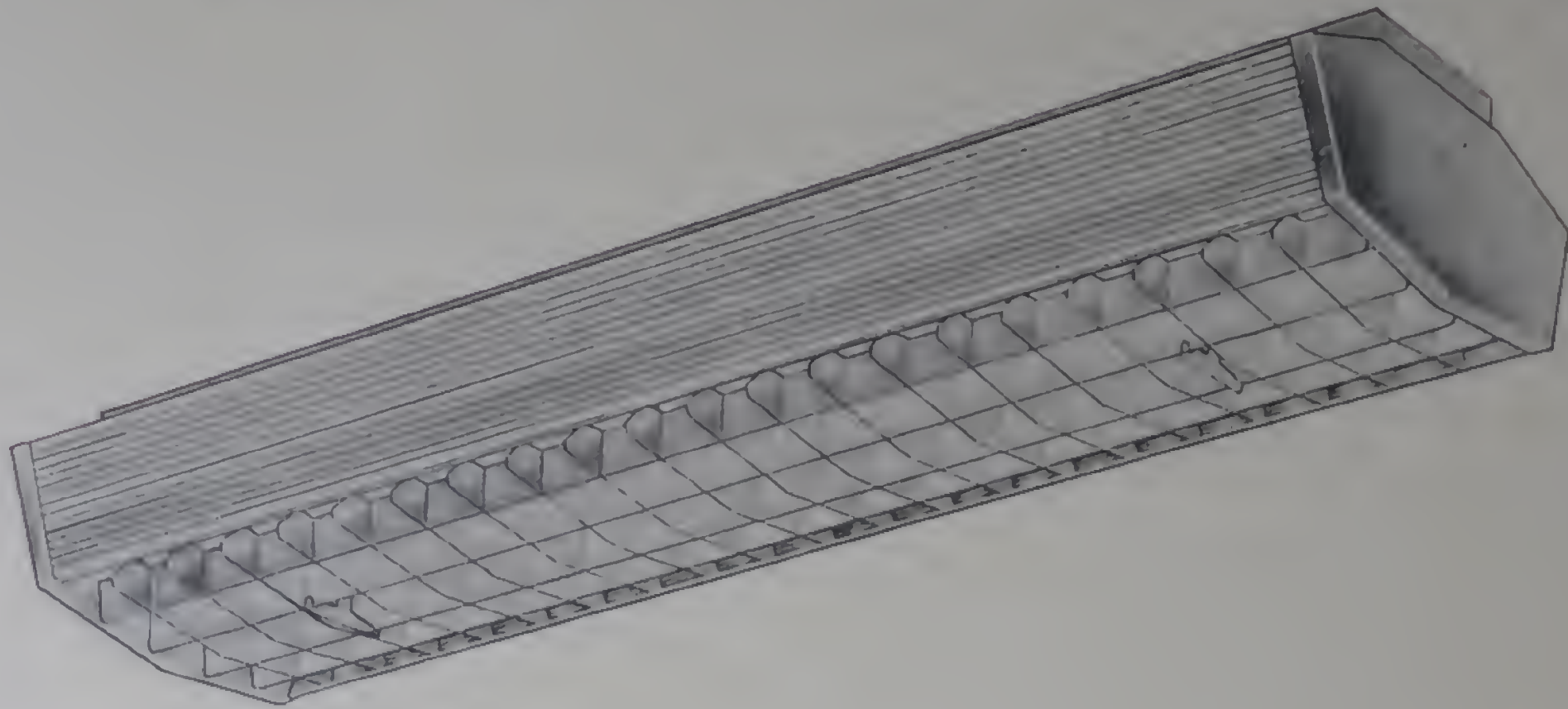
1'-6"	1-15	381-C	\$18.00	.....	.....
2'-0"	1-20	387-C	18.55	.....	.....
3'-0"	1-30	391-C	22.85	.....	.....
4'-0"	1-40	394-C	22.50	.....	.....
6'-0"	2-30	392-C	43.40	.....	.....
8'-0"	2-40	395-C	42.50	395-EC	\$40.70
9'-0"	3-30	393-C	63.90	393-EC	62.10

Economy Type

1'-6"	1-15	444-C	\$16.55	.....	.....
2'-0"	1-20	445-C	17.10	.....	.....
3'-0"	1-30	446-C	21.40	.....	.....
4'-0"	1-40	447-C	21.05	.....	.....
6'-0"	2-30	491-C	41.95	.....	.....
8'-0"	2-40	493-C	41.05	493-EC	\$39.25
9'-0"	3-30	495-C	62.45	495-EC	60.65

Fixtures are for 110-125 volt, 60 cycle operation. Supplied assembled and wired, complete with high power factor ballast, lampholders and starter. Lamps are not included in prices.

DAWN "DESIGN 12" LUMINAIRE



This luminaire is unexcelled in design and appearance. The glass side panels and the aluminum louver with patented alumilite finish shield the lamps and reduce the brightness of the unit to comfortable levels, making it an excellent luminaire for high quality lighting of schools, offices and commercial areas where comfortable seeing conditions are a primary consideration.

Construction

Mechanical design for durability, ease of installation and ease of maintenance go with this luminaire. Metal parts are made of aluminum for light weight and durability. A separate ceiling pan with mounting bolts to attach the fixture proper is provided as a wiring trough for end to end mounting. The ballast pan of the fixture proper has socket straps apart from the cover so the cover may be removed for installation without disturbing the fixture wiring. The louver is suspended by a cradle support attached to mounting bolts which also hold the cover in place by means of two wing nuts.

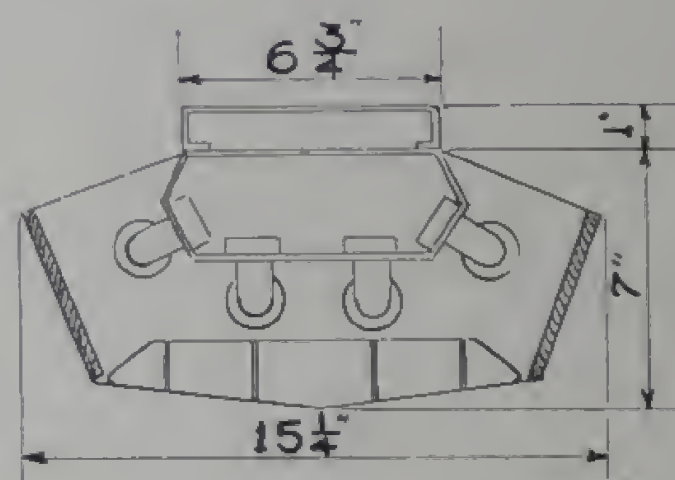
Finish

The complete fixture has the patented alumilite finish. Alumilite is an electro-chemical process on aluminum which produces a hard, non-tarnishing, easy to clean surface, satin silver in appearance.

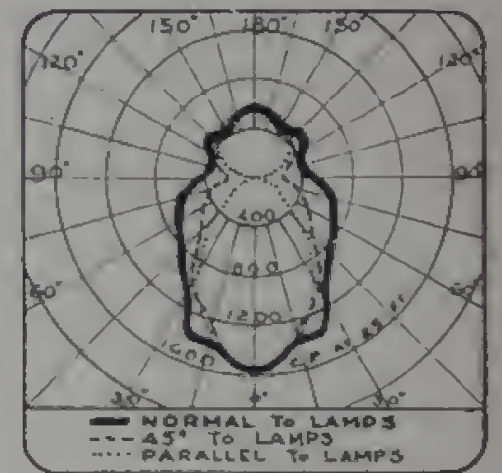
It is highly efficient in the reflection of light and the efficiency does not deteriorate with age.

Auxiliary Equipment

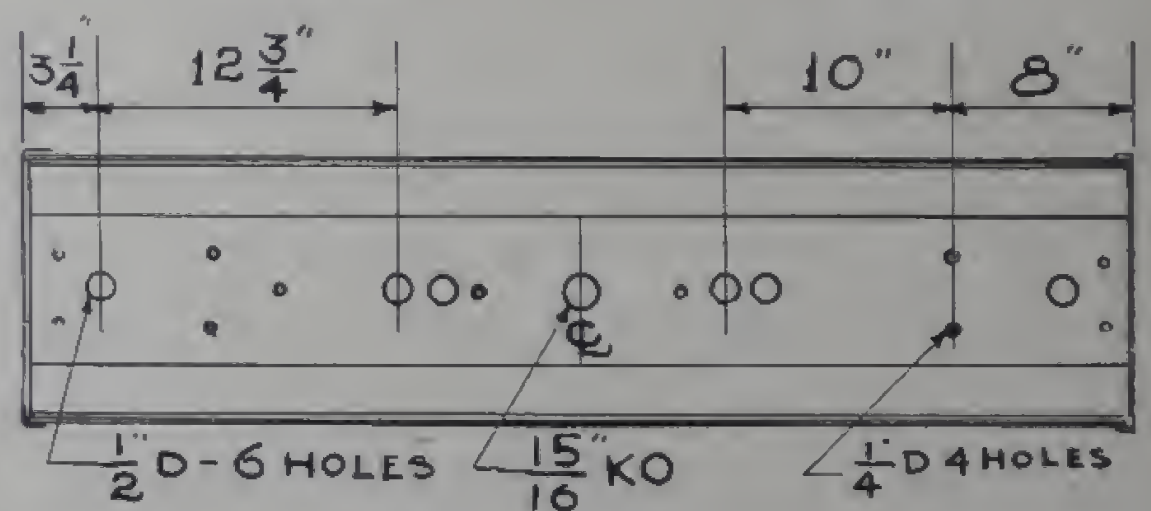
Luminaire is supplied wired complete with tulamp high power factor ballasts and no-blink starters.



Cross Section



Distribution Curve



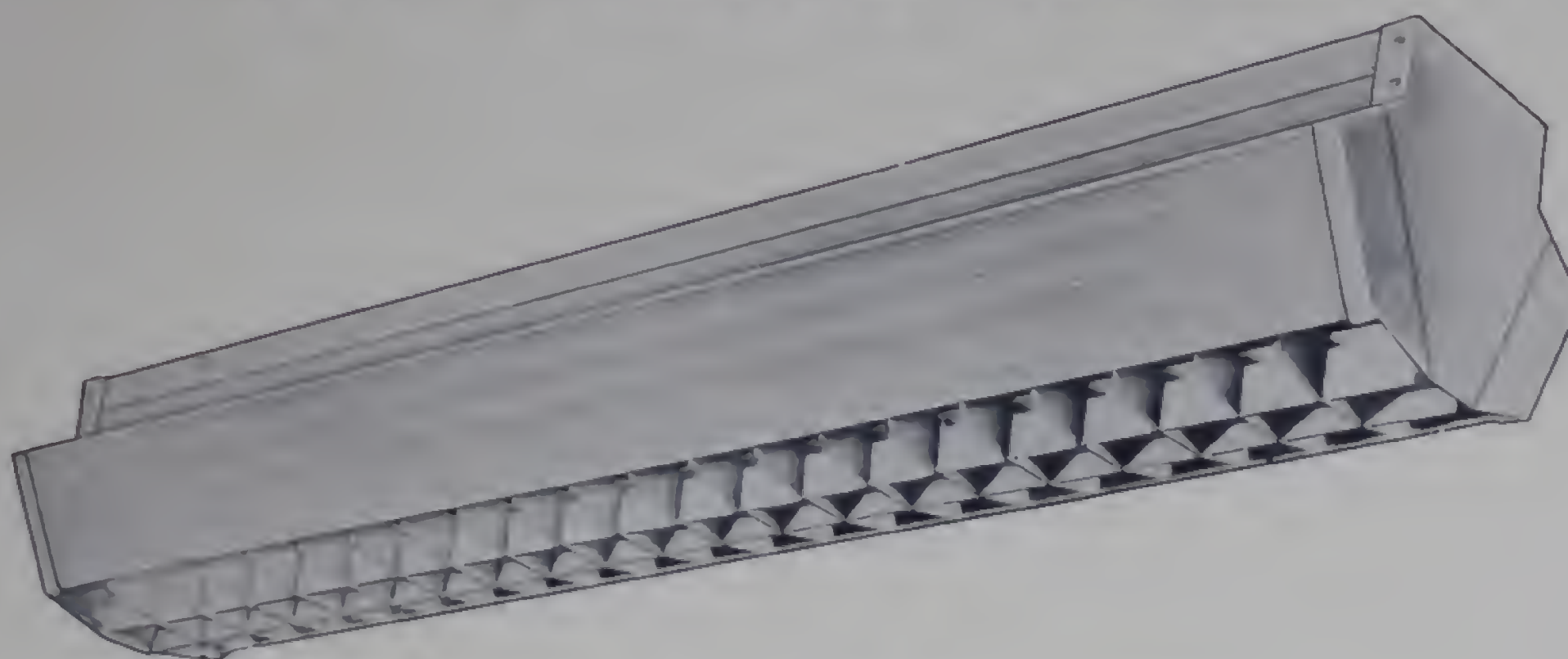
Plan Showing Mounting Holes

Cat. No.	Price Each	Cycles	Lamp Watts	Line Voltage	Approx. Watts Consumed	Dimensions (Inches)			Ship. Wt
						Length	Width	Depth	
†44012 *K1	\$54.50 2.50	60 ..	4-40	110-125	194 ..	48 1/8 24	15 1/4	8 ..	38 3

*Suspension Kit.

†Cat. No. 44012 is available for 25 cycle operation at \$70.50 each. Instant start ballasts for 60 cycle 110-125 volts operation available, add \$16.00 to price. For additional rod hanger add \$1.00 list per foot or fraction thereof. Lamps are not included in prices.

DAWN "DESIGN 16" LUMINAIRE



The two lamp companion luminaire to the outstanding four lamp Design 12. Similar in every respect, providing a more suitable unit for quality lighting in low ceiling areas. The glass side panels and the aluminum louver with patented alumilite finish shield the lamps and reduce the brightness of the unit to comfortable levels. Ideally suited for schools, offices and commercial areas with low ceilings where comfortable seeing conditions are of prime importance.

Construction

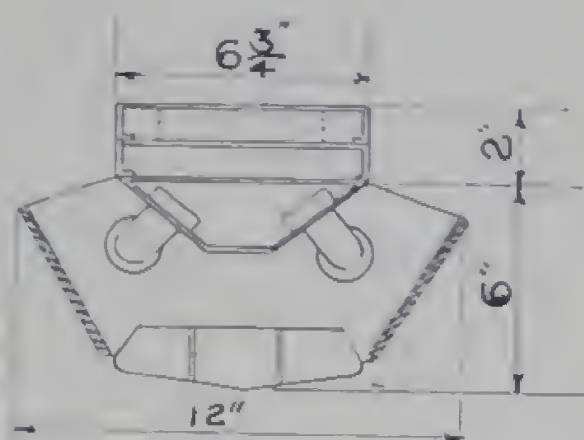
The metal parts, made of aluminum, are light in weight. A separate ceiling pan is provided as a wiring trough particularly suited for end to end mounting. This trough has knockouts and mounting holes punched for mounting to outlet boxes or ceiling. The ballast pan of the fixture has socket straps apart from the cover which permits the cover to be removed for installation without disturbing the fixture wiring. The cover is held by supporting bolts from the ballast pan secured by wing nuts. The louver is suspended in position and hinges from weld pins on the end caps.

Finish

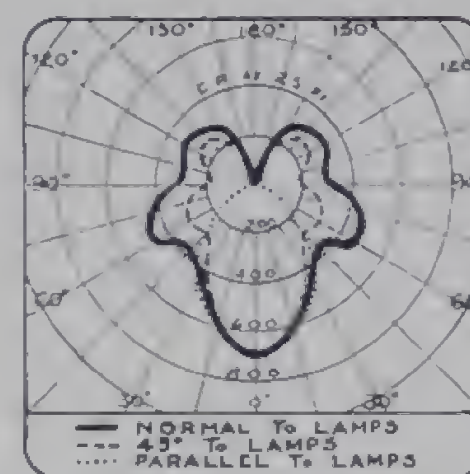
The complete fixture has the patented alumilite finish. Alumilite is an electro-chemical process on aluminum which produces a hard, non-tarnishing, easy to clean surface, satin silver in appearance.

Auxiliary Equipment

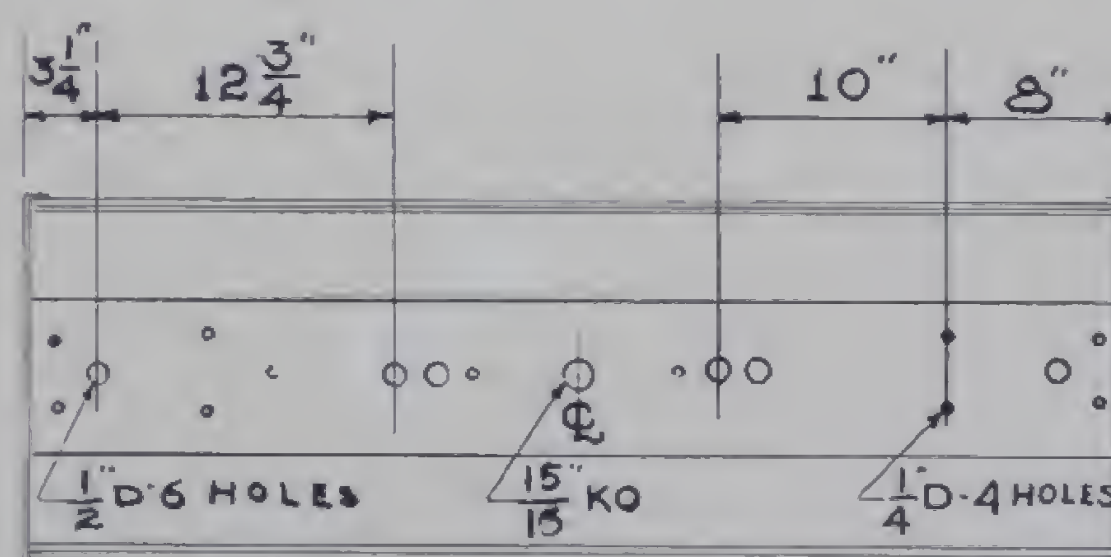
Luminaire is supplied wired complete with tulamp high power factor ballasts and no-blink starters.



Cross Section



Distribution Curve



Plan Showing Mounting Holes

Cat. No.	Price Each	Cycles	Lamp Watts	Line Voltage	Approx. Watts Consumed	Dimensions (Inches)			Ship. Wt.
						Length	Width	Depth	
22016	\$30.00	60	2-20	110-125	49	24	12	8	16
*24016	38.50	60	2-40	110-125	97	48	12	8	28
†K1	2.50	..	.....	.....	..	24	....	..	3

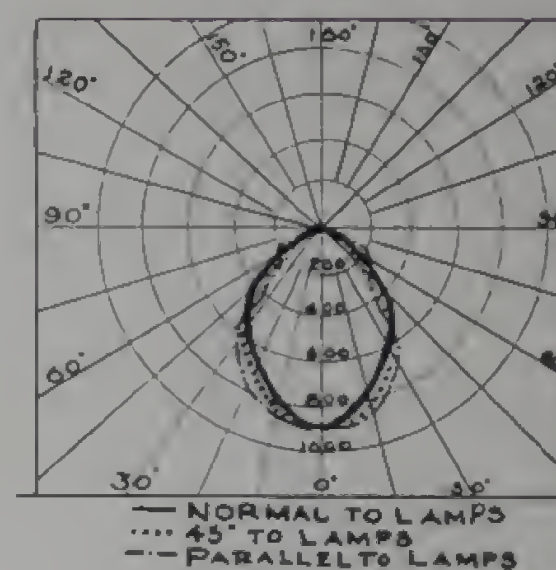
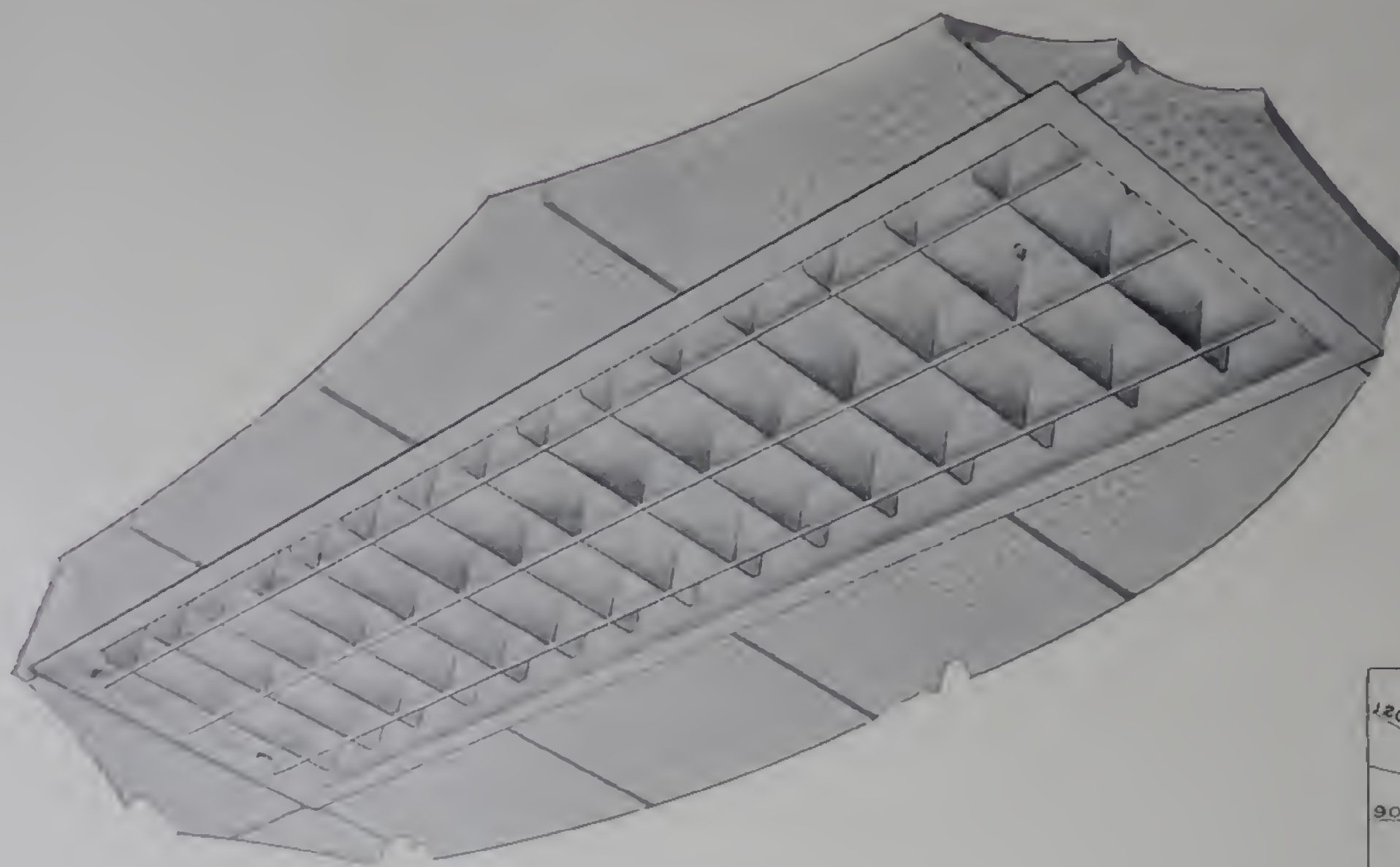
*Cat. No. 24016 is available for 25 cycle operation, at \$49.80 each. Instant start ballasts for 60 cycle 110-125 volt operation available, add \$8.00 to price.

†Suspension Kit.

For additional rod hanger add \$1.00 list per foot or fraction thereof.

Lamps are not included in prices.

DAWN "DESIGN 19" LUMINAIRE



Distribution Curve

The lighting unit of distinction for the smooth, flush-to-the-ceiling lighting installation. It is designed primarily for use in modernization of offices, schools, stores, and commercial areas where acoustic type ceilings, air conditioning and modern construction are part of the scheme. It is equally adaptable to plaster and other types of ceilings. When fitted with either louver or glass panel it is smart in appearance and provides efficient, quality lighting.

Construction

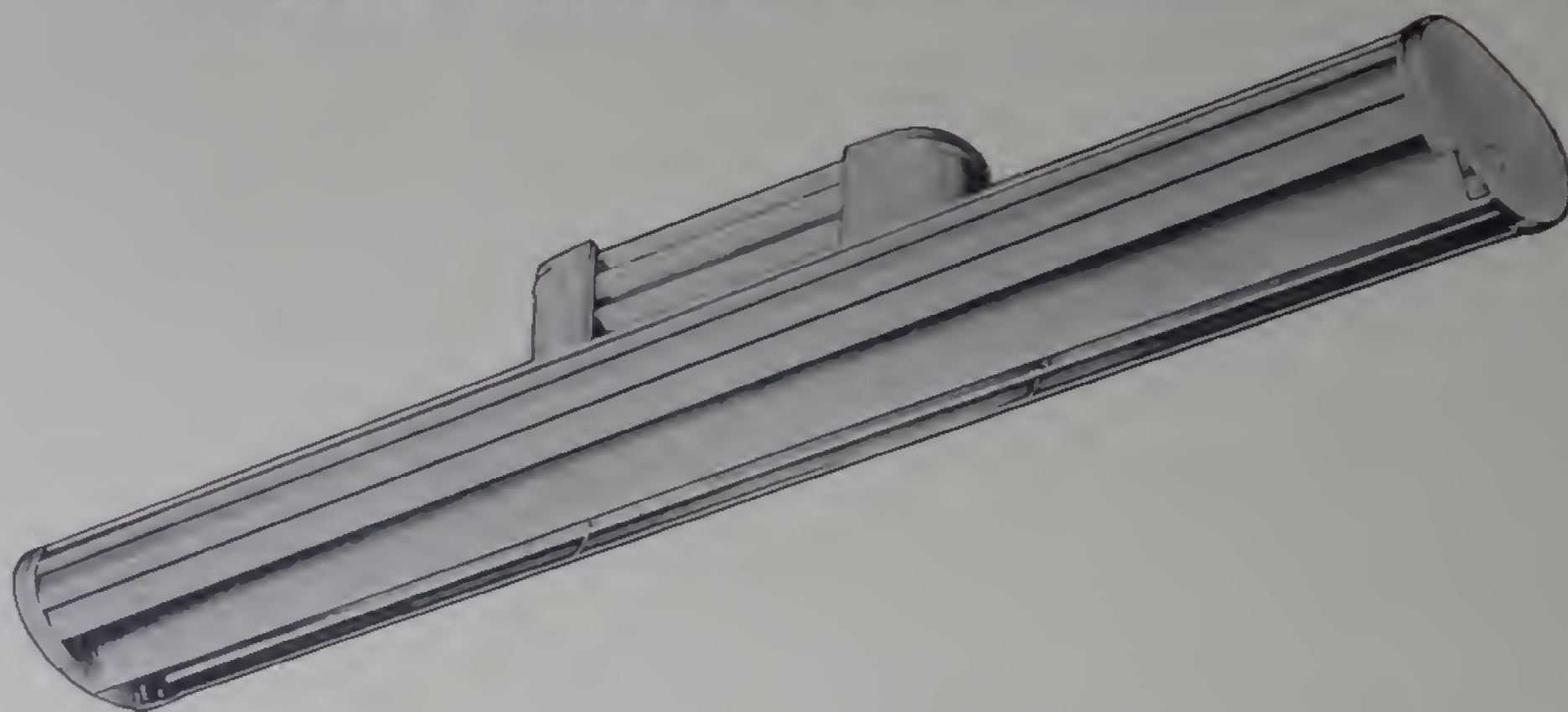
Mechanically designed to have all the features desirable for installation, maintenance and lighting

results. It is made of aluminum, today's smart metal, for lightness and durability. Heavy gauge U-shaped steel supporting brackets are supplied for suspending the fixture and adjusting for alignment and to these may be attached fittings to carry acoustic type ceilings. A separate pan is supplied containing wireways and junction boxes with suitable knockouts for the wiring system eliminating the need for conduit and outlet boxes. The ballast pan contains all the fixture wiring and is easily attached by means of two wing-nuts to the wiring pan. The reflector with closed ends is designed to fit into a standard sized ceiling opening 48 inches by 12 inches with a covering edge on

Cat. No.	Price Each	Cycles	Lamp Watts	Line Voltage	Approx. Watts Consumed	Dimensions (Inches)			Ship. Wt.
						Length	Width	Depth	
12019	\$29 00	60	1-20	110-125	25	24	11 ³ / ₄	8	13
14019	40 00	60	1-40	110-125	49	48	11 ³ / ₄	8	22
22019	33 00	60	2-20	110-125	49	24	11 ³ / ₄	8	16
32019	40 00	60	3-20	110-125	74	24	11 ³ / ₄	8	20
24019	43 70	60	2-40	110-125	97	48	11 ³ / ₄	8	28
34019	54. 50	60	3-40	110-125	143	48	11 ³ / ₄	8	32

Instant start ballasts for 2-40 watt 60 cycle 110-125 volt operation available, add \$8.00 to price.
Lamps are not included in prices.

DAWN "DESIGN 21" LUMINAIRE



This is a direct-indirect type of luminaire with smart lines for modern offices, stores or commercial areas. The unit is neat and streamlined in appearance with fluted sides to shield the lamp and add distinction to a lighting system.

Construction

This luminaire is delicate in appearance but rigid in construction. A detachable U-shaped channel in the form of a ceiling assembly is the connecting link for attaching to the ceiling or outlet box. The main assembly is attached to this by means of two buttons on the top of the fixture wiring channel. The main assembly consists of a U-shaped wiring channel which supports the lampholders, starters, end caps and a special ballast housing with a separate chamber or junction box for making electrical connections to the circuit wiring. The wiring channel has a V-shaped cover held by side clips so is easily removed for wiring and servicing. The fluted side shields fit on to the end caps and are easily removable for cleaning and relamping.

Finish

Finish is standard painted white enamel.

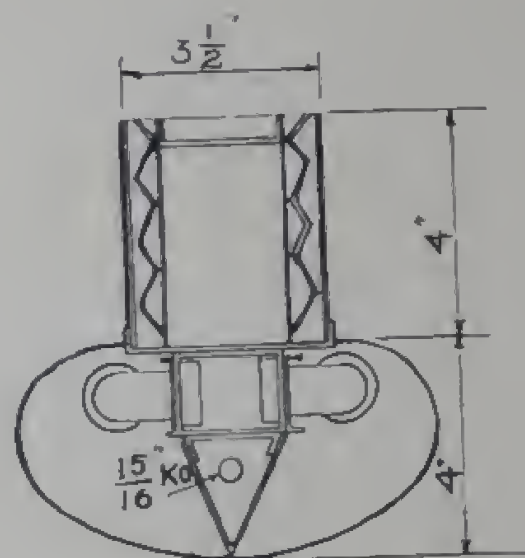
Auxiliary Equipment

Luminaire is supplied wired complete with tulamp high power factor ballast and no-blink starters.

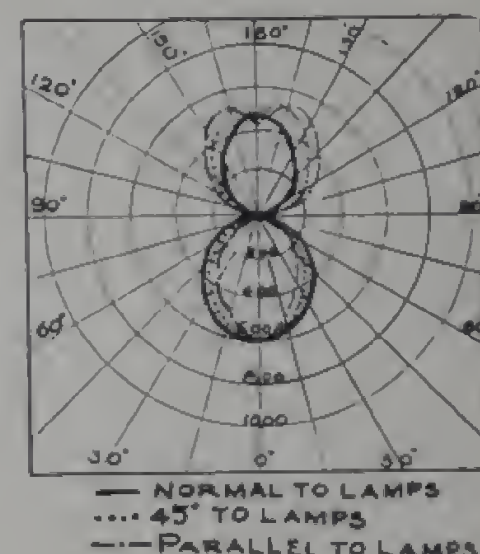
Installation

To install the fixture remove the U-shaped ceiling

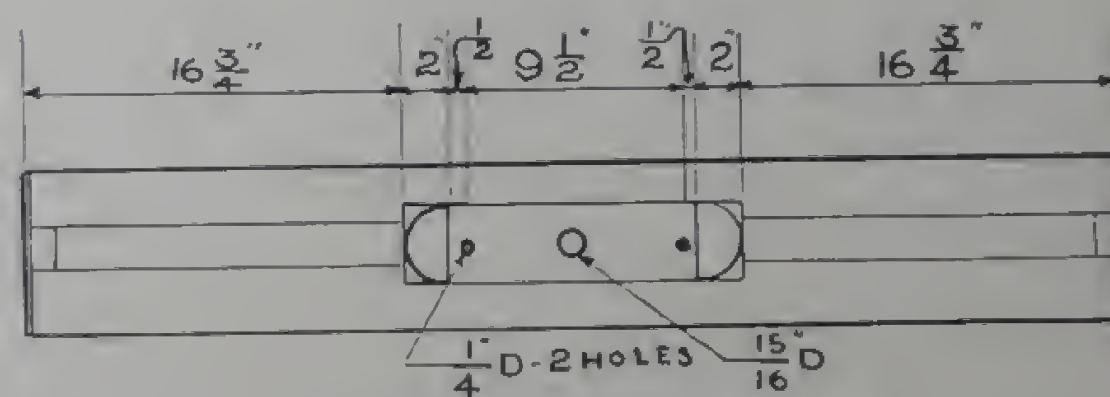
assembly by turning the two buttons 90 degrees permitting it to slide off. This mounting support may be attached to an outlet box by means of hickey, nipple and locknuts or secured to the ceiling by means of wood screws and toggle bolts through holes provided in the channel. The circuit wiring is then threaded into this channel and the fixture proper slides into this assembly closing the U-shaped channel wireway and the unit is made secure by means of the turn buttons.



Cross Section



Distribution Curve

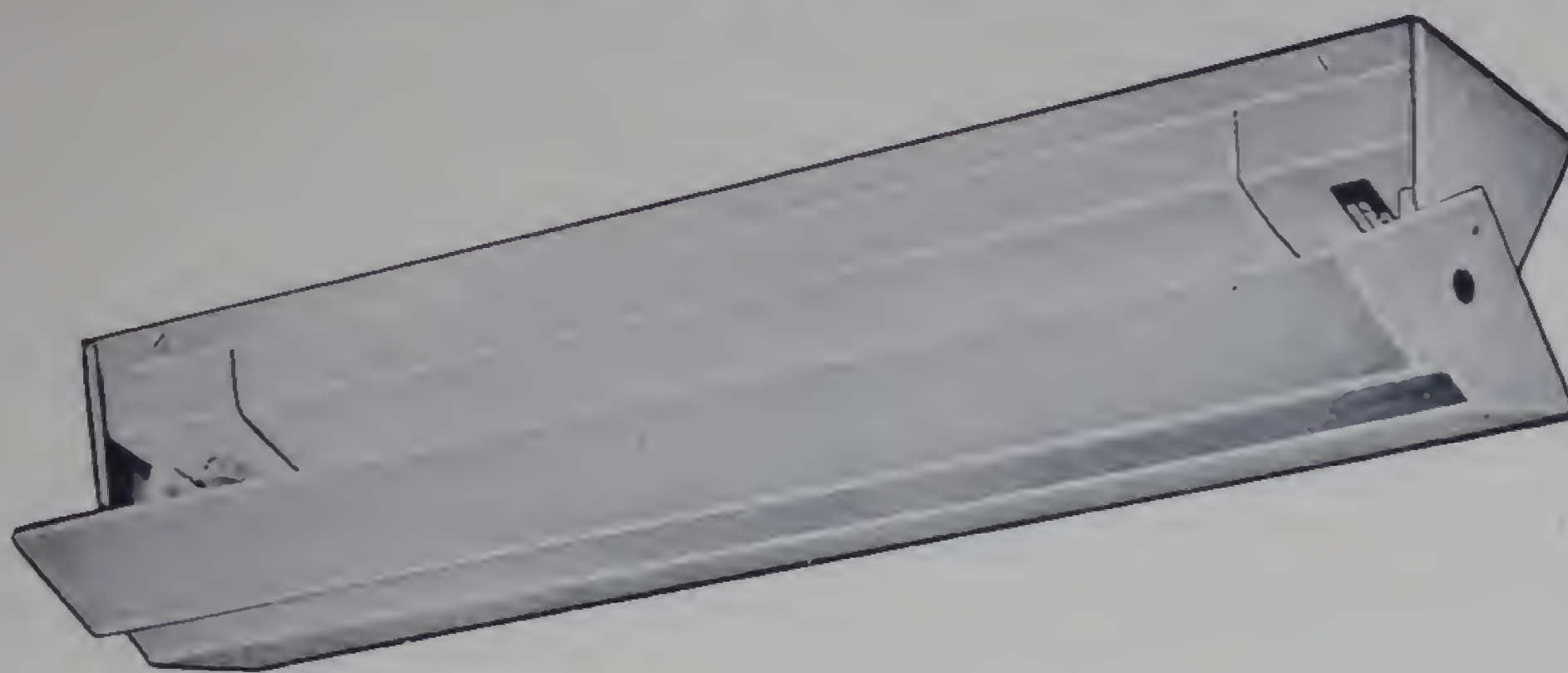


Plan Showing Mounting Holes

Cat. No.	Price Each	Cycles	Lamp Watts	Line Voltage	Approx. Watts Consumed	Dimensions (Inches)			Ship. Wt
						Length	Width	Depth	
24021	\$33 50	60	2-40	110-125	97	48 1/8	7 1/2	7 3/4	23

Lamps are not included in prices.

DAWN "DESIGN 10" LUMINAIRE



Design 10 is a modern unit with an adjustable reflector making it useful for many unusual applications. Mounted on the ceiling it makes an ideal indirect unit for halls and corridors. Mounted on the wall it makes a neat cove type unit by adjusting the reflector to direct all the light upwards or the reflector can be adjusted in the opposite way to direct the light down on specific areas. It has many other applications in private offices, corridors, bank cages, hallways, kitchens, bathrooms and as a bed reading lamp.

Construction

The unit is rigid in construction. The wiring pan is U-shaped with welded on end caps and socket straps separate from the cover.

Finish

The external surfaces are finished in metallic silver grey which blends in well with most color schemes. The interior of the reflector is finished white and the cover is aluminum with patented aluminite finish.

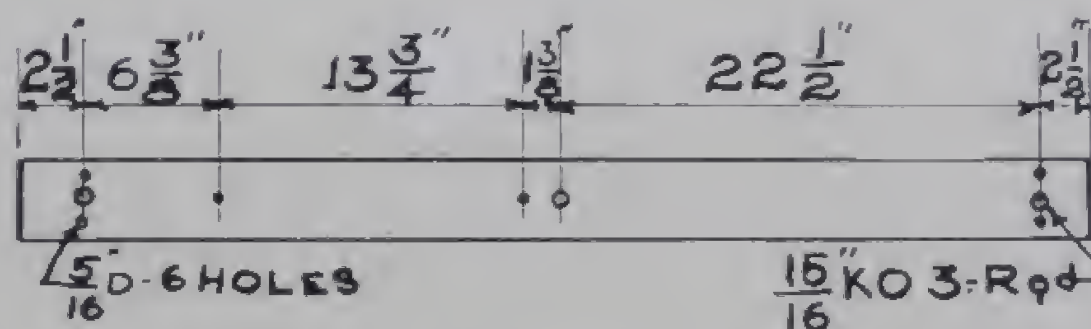
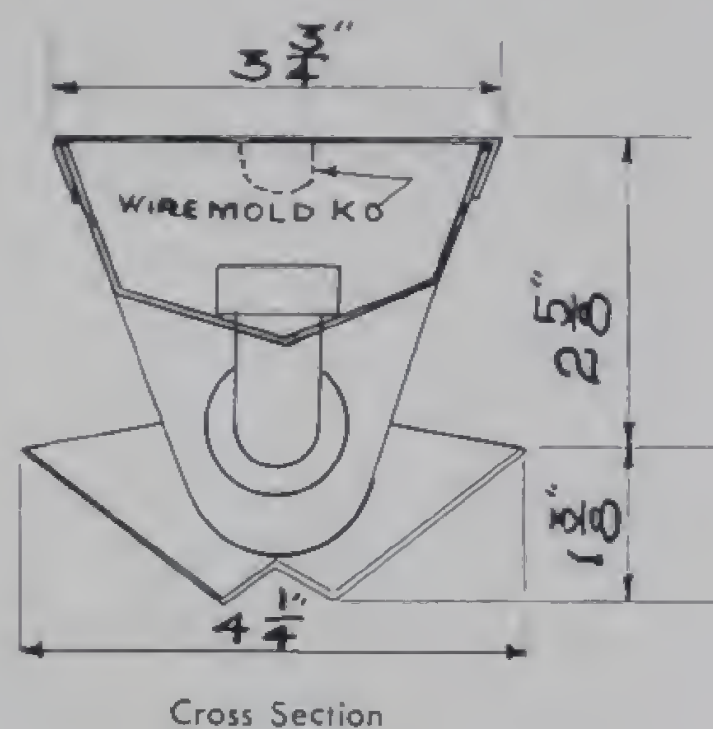
Auxiliary Equipment

The lighting unit is supplied wired complete with high power factor ballast, and no-blink starter.

Installation

To install the luminaire remove the reflector

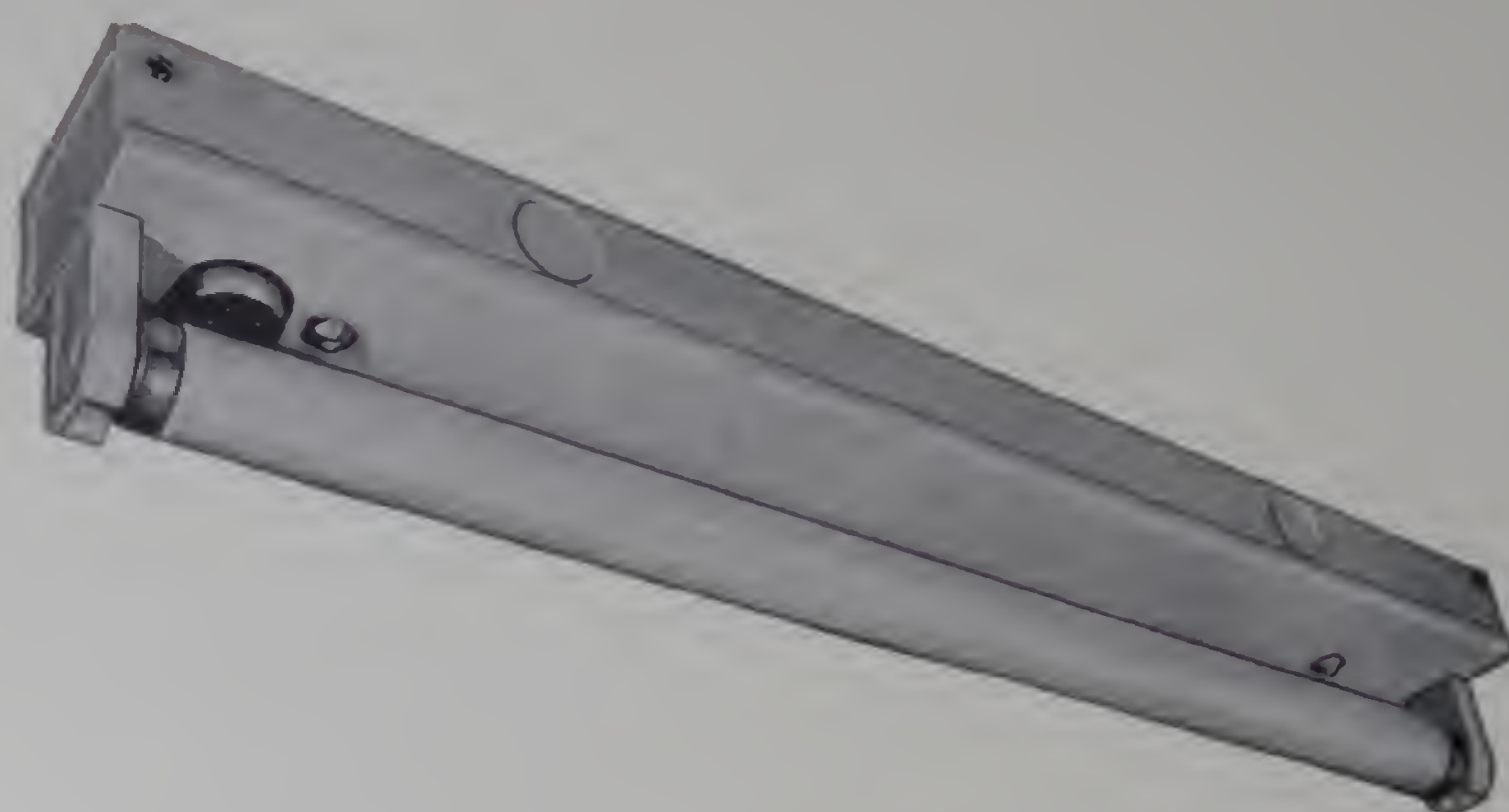
by springing it off the end caps, then remove the separate cover by squeeze action. A center knockout is provided in the wiring pan for mounting to outlet boxes by means of hickey, nipple and locknuts. Mounting holes are also provided for securing by means of toggle bolts or wood screws and the circuit connection may be made in wire-mold through the wiremold knockout in either end cap.



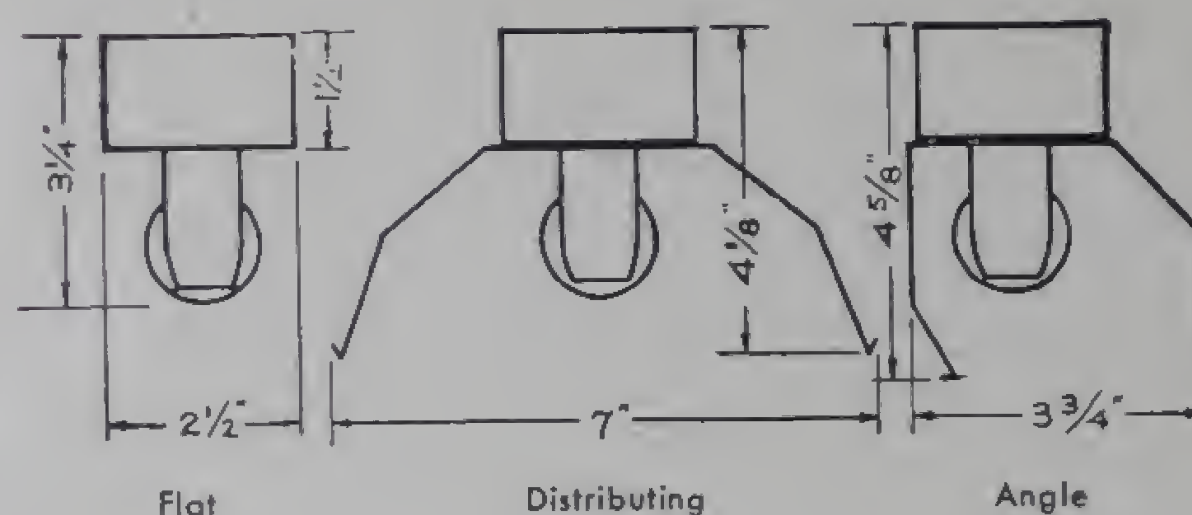
Cat. No.	Price Each	Cycles	Lamp Watts	Line Voltage	Approx. Watts Consumed	Dimensions (Inches)			Ship. Wt
						Length	Width	Depth	
11510	\$15.00	60	1-15	110-125	19	19	3 3/4	4	6
12010	15.00	60	1-20	110-125	25	25	3 3/4	4	8
13010	22.00	60	1-30	110-125	39	37	3 3/4	4	12
14010	22.00	60	1-40	110-125	49	49	3 3/4	4	15

Lamps are not included in prices.

"FLUOROSTRIP" FIXTURES



Flat Channel Type



The compact size of the wiring channel permits the use of these fixtures in wall-cases and other locations where space is limited. They are available in individual units 18", 24", 36" and 48" in length, and may be joined in continuous runs with no spaces between sockets. Three reflector styles may be obtained: "A", flat channel type; "C", distributing type; "E", angle type.

Construction

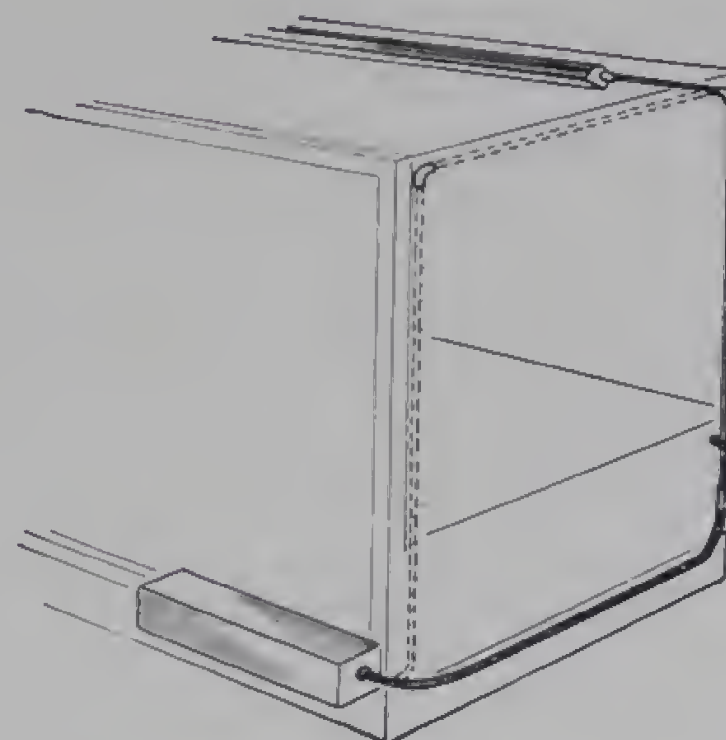
The end cap is designed so that it may be removed and inserted again to form a connector strip, making a solid connection between fixtures. This eliminates the necessity of using connecting nipples and provides a full size wiring channel for wiring. A small BX connector box is available for application at the end of a run to make suitable connections. Fixtures are finished in baked white enamel. Supplied

wired, complete with starter and high power factor ballast. Available for 60 cycle 110-125 volt operation only.

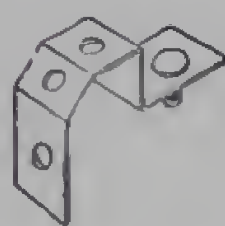
Cat. No.	Price Each	Lamp Watts	Standard Package	
			Quantity	Weight
WITH TYPE "A" FLAT REFLECTOR				
A-118	\$15.00	1-15	6	26
A-124	15.00	1-20	6	28
A-136	20.60	1-30	6	38
A-148	18.30	1-40	6	44
WITH TYPE "C" DISTRIBUTING REFLECTOR				
C-118	16.10	1-15	6	36
C-124	16.30	1-20	6	38
C-136	22.10	1-30	6	48
C-148	20.10	1-40	6	54
WITH TYPE "E" ANGLE REFLECTOR				
E-118	16.10	1-15	6	36
E-124	16.30	1-20	6	38
E-136	22.10	1-30	6	48
E-148	20.10	1-40	6	54

Cat. 4020 BX End Connector Box, \$0.50 each.
Lamps are not included in prices.

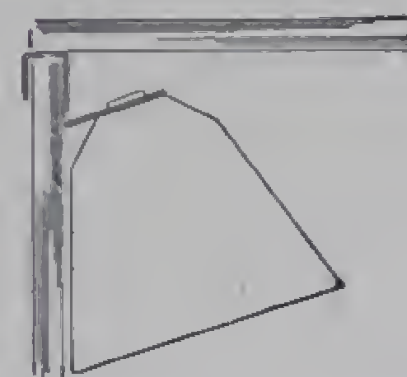
FLUORESCENT SHOW CASE FIXTURES



View Showing Alternate Methods
of Installing Tubing



Mounting Clip



Cross Section of Reflector

Effective illumination of show cases plays an important part in modern methods of merchandising. A well-lighted show case not only improves the appearance of the store interior, but also attracts the attention of passing customers to the products displayed, resulting in increased sales.

This line of fluorescent show case fixtures is available in three packaged sizes, which provide sufficient flexibility to light most types of show cases.

Construction

The reflector is compact and modern in appearance, thus making it suitable for the new, clear-vision show cases. Two special mounting clips make it possible to install the fixture in wood trim, metal trim, or all-glass cases with equal facility.

Lamp and starter are readily accessible without removing fixture from the case. The ballast equipment is mounted in a separate box. Fixtures are

supplied wired, complete with ballast, starter, mounting clips, two 38" lengths of brass tubing, one 30" length of BX cable, ballast box, and the necessary connectors and clamps. Available for 60 cycle, 110-125 volt, high power factor operation only.

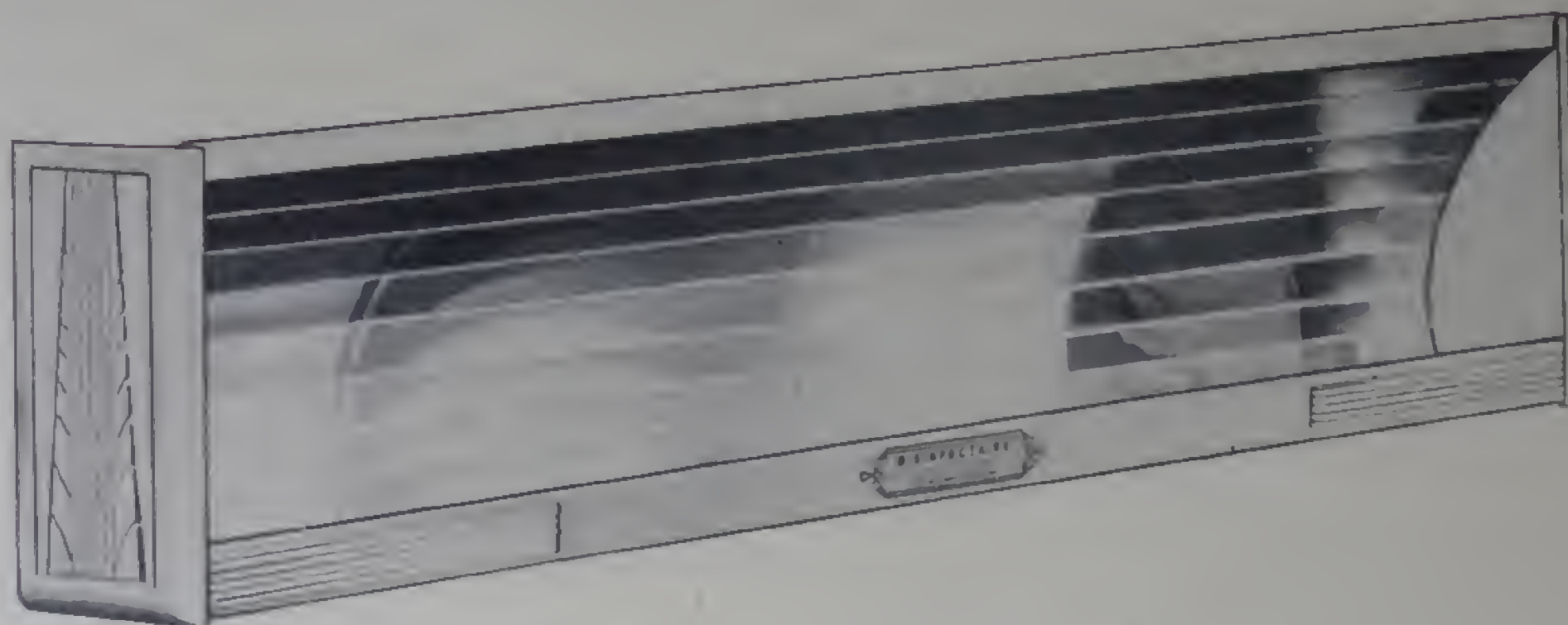
Finish

Reflecting surface is baked white enamel. Outside of fixture is available in brushed chrome or statuary bronze finish.

Cat. No.	Price Each	Description	Weight Each
5531	\$54.20	For 1-30 watt and 1-15 watt lamp	12
5532	31.90	For 1-15 watt lamp	16
5533	40.40	For 1-30 watt lamp	24

When ordering, specify whether brushed chrome or statuary bronze finish is required.
Lamps are not included in prices.

GENERAL ELECTRIC "DISINFECTAIRE" GERMICIDAL FIXTURE



Disinfectaire germicidal units provide controlled radiation of ultraviolet energy with maximum efficiency. Scientifically engineered and precision built, they reduce air-borne bacteria and other micro-organisms in the air.

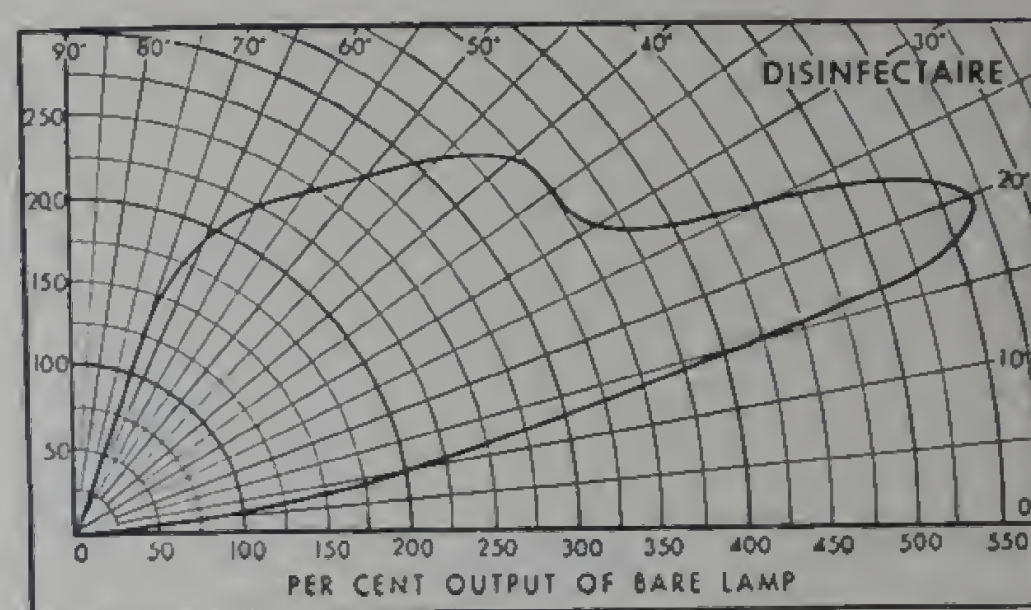
An effective method for upper-air disinfection consists of installing Disinfectaire units on the side walls throughout the area to be irradiated.

The distribution of the reflector concentrates a controlled beam of high intensity radiation horizontally. This is accomplished through the use of an asymmetric reflector which has a curved surface compounded by a series of directional planes.

The distribution curve discloses the efficiency and effectiveness of the unit and indicates it can be advantageously used in low ceiling areas.

Disinfectaire units are attractively designed, with modelled end-plates and decorative chrome trim on a background finished in baked ivory enamel. The reflector is Alzak aluminum.

Units should be installed on the walls not less than 7 feet above the floor in a horizontal position —



Distribution Curve

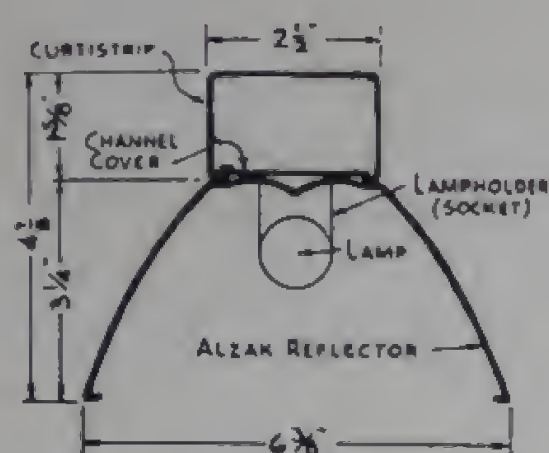
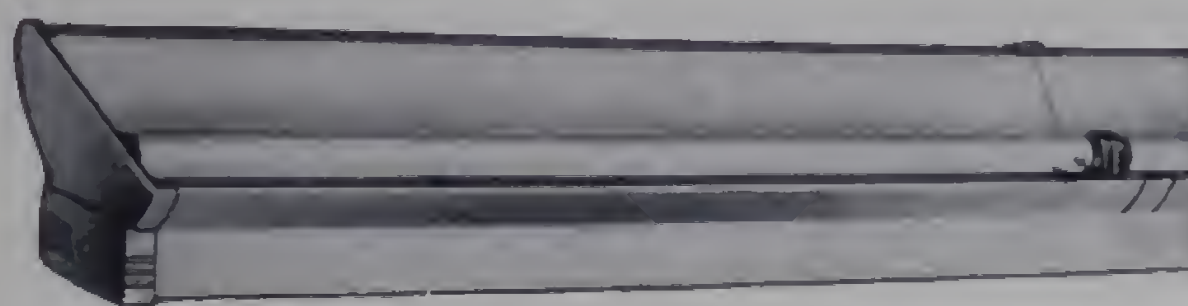
radiation upward. Permanent type is supplied with $\frac{3}{8}$ " hickey, locknut and nipple for mounting on outlet box; or may be mounted directly on wall. Portable type is mounted by means of lugs on back plate, and is equipped with an 8 foot rubber cord and plug.

Disinfectaire units are supplied wired, complete with low power factor ballasts and FS-2 (15 watt) or FS-4 (30 watt) starters.

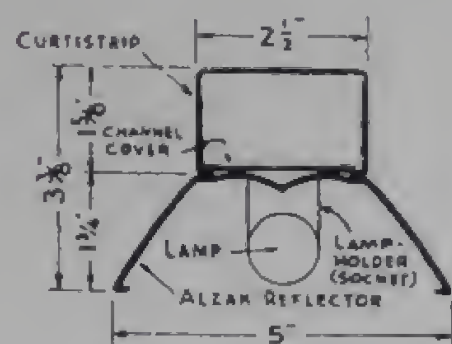
Cat. No.	Price Each	Lamp Watts	Type	Line Voltage	Approx. Watts Consumed	Dimensions (Inches)			Std Pkg	
						Length	Width	Depth	Qty	Wt
60 CYCLE										
2925A-60	\$27.30	1-15	Portable	110-125	20	19½	3¾	7½	2	25
2925B-60	27.30	1-15	Permanent	110-125	20	19½	3¾	7½	2	25
2926A-60	38.70	1-30	Portable	110-125	39	37½	3¾	7½	2	35
2926B-60	38.70	1-30	Permanent	110-125	39	37½	3¾	7½	2	35
25 CYCLE										
2925A-25	\$28.70	1-15	Portable	110-125	24	19½	3¾	7½	2	27
2925B-25	28.70	1-15	Permanent	110-125	24	19½	3¾	7½	2	27
2926A-25	43.80	1-30	Portable	110-125	47	37½	3¾	7½	2	41
2926B-25	43.80	1-30	Permanent	110-125	47	37½	3¾	7½	2	41

Lamps are not included in prices.

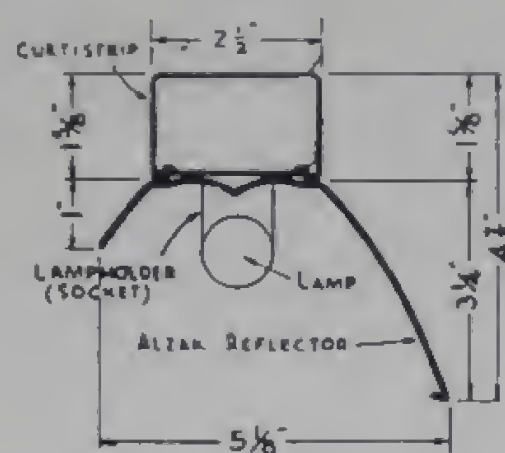
GERMICIDAL CURTISTRIP



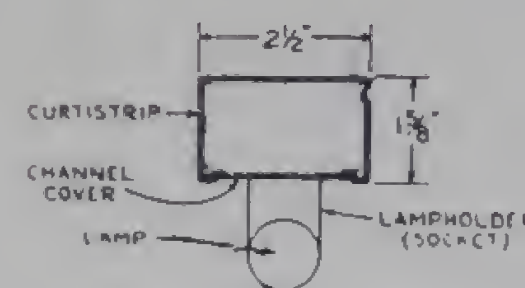
Deep Reflector



Shallow Reflector



Directional Reflector



Reflectorless

Germicidal Curtistrip can be used for upward or downward radiation. They can be placed on top of book cases or filing cabinets or can be suspended from the ceiling. While they are strictly utilitarian, they are pleasing in appearance with clean functional lines.

DEEP REFLECTOR TYPE

For upward radiation, mount at least 4 feet above floor. For downward radiation, mount no higher than 6 feet above floor.

SHALLOW REFLECTOR TYPE

For upward radiation, mount at least 5 feet above floor. For downward radiation, mount no higher than 5 feet above floor.

DIRECTIONAL REFLECTOR TYPE

For upward radiation, mount at least 6 feet above floor. For downward radiation, mount no higher than 4 feet above floor.

REFLECTORLESS TYPE

For use only in air ducts or under hoods where the lamp is entirely concealed from the eyes.

Suspension

These units may be suspended from the ceiling by using two No. 614-G hangers, one at each end. Standard length 3 feet — longer lengths can be supplied at extra cost.

Cord and Plug

Catalogue numbers shown include the units wired and assembled complete with ballast but do not include cord or plug. If this is required, it can be furnished if specified on the order at extra cost.

Finish

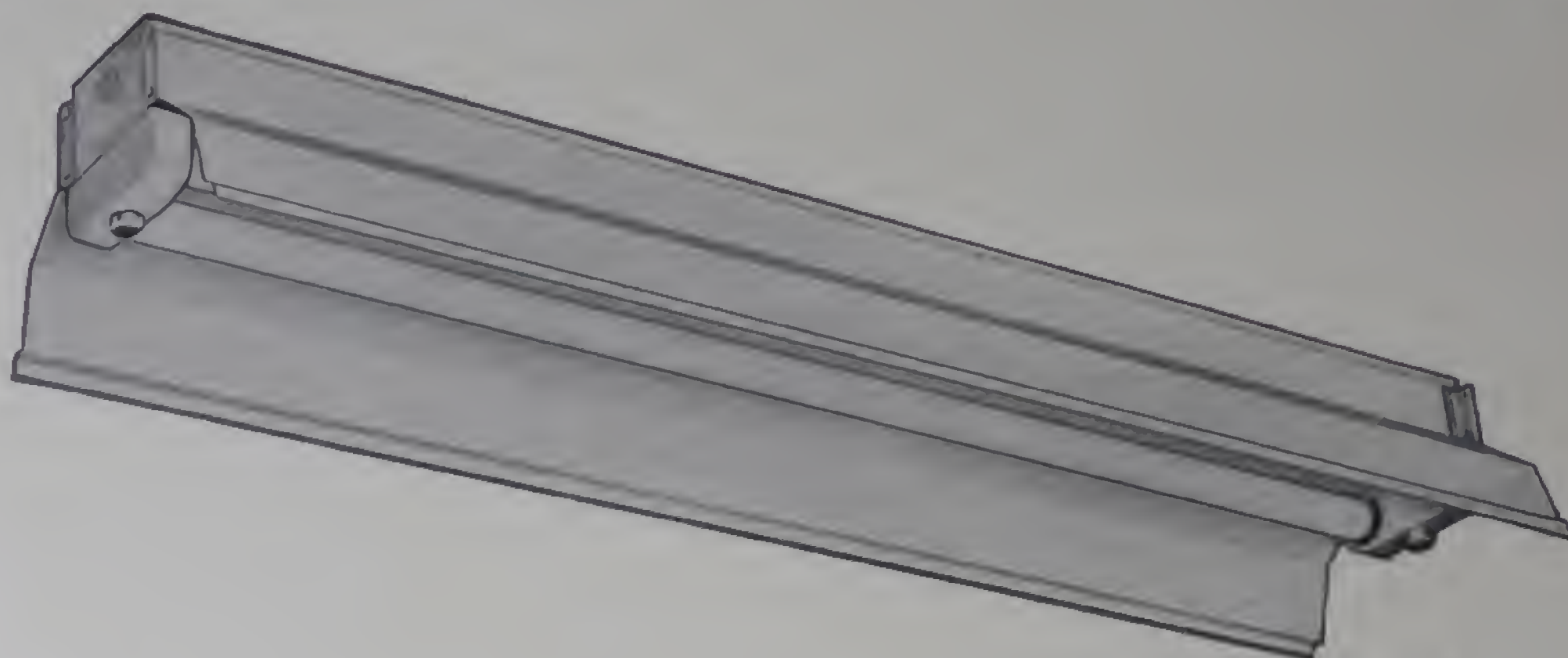
Units are finished in aluminum and reflecting surface is aluminum. This reflecting surface is the highest efficiency type available.

60 CYCLE		25 CYCLE		Lamp Watts	Dimensions (Inches)			Std Pkg	
Cat. No.†	Price Each	Cat. No.*	Price Each		Length	Width	Height	Qty	Wt
DEEP REFLECTOR TYPE									
201-GCS	\$24.30	201-GFS	\$26.75	15	18 $\frac{1}{4}$	6 $\frac{3}{8}$	4 $\frac{7}{8}$	1	9
212-GCS	31.30	212-GFS	34.45	30	36 $\frac{1}{4}$	6 $\frac{3}{8}$	4 $\frac{7}{8}$	1	15
SHALLOW REFLECTOR TYPE									
327-GCS	\$22.85	327-GFS	\$25.20	15	18 $\frac{1}{4}$	5	3 $\frac{3}{8}$	1	8
337-GC	30.95	337-GF	34.20	30	36 $\frac{1}{4}$	5	3 $\frac{3}{8}$	1	12
DIRECTIONAL REFLECTOR TYPE									
292-GC	\$24.50	292-GF	\$27.00	15	18 $\frac{1}{4}$	5 $\frac{1}{8}$	4 $\frac{7}{8}$	1	8
302-GCS	31.25	302-GFS	34.40	30	36 $\frac{1}{4}$	5 $\frac{1}{8}$	4 $\frac{7}{8}$	1	13
REFLECTORLESS TYPE									
444-GC	\$16.55	444-GF	\$18.35	15	18 $\frac{1}{4}$	2 $\frac{1}{2}$	3 $\frac{1}{8}$	1	6
446-GC	21.40	446-GF	23.60	30	36 $\frac{1}{4}$	2 $\frac{1}{2}$	3 $\frac{1}{8}$	1	11

*25 cycle low power factor ballast.
†60 cycle high power factor ballast.
Lamps are not included in prices.

No. 614-G hanger, \$9.00 each. Additional length stem, \$1.35 per foot.
Addition for 6 ft. cord and plug, \$1.80 each.
Addition for toggle switch, \$1.53 each.

GENERAL ELECTRIC "TWIN TURRET" LUMINAIRE



The General Electric Twin Turret industrial fluorescent luminaire provides cool, almost glare-free light for general and localized illumination of industrial areas. This economical and efficient fixture makes possible high levels of illumination for quick, accurate, easy seeing at a reasonable initial cost. Increased production efficiency, better working conditions, together with simplified installation and maintenance, are but a few of the benefits a properly designed installation of General Electric Twin Turret luminaires provides.

Design

The General Electric Twin Turret luminaire is carefully engineered to RLM Standards specifications. Light source is adequately shielded by reflector which has a 19 degree shielding angle from horizontal. Lamps are spaced on 3½ inch centres in accordance with RLM specifications.

Construction

Sturdily built to rigid General Electric standards to ensure long life and trouble free operation. Equipped with the new Twin Turret lampholder which permits easy lamp insertion and prevents

lamps from being dislodged. This lampholder, as well as being streamlined and neat in appearance, is exceptionally strongly constructed. Starters are conveniently located for easy maintenance.

Durable one-piece reflector uses quick-release cam-type fasteners. A quarter turn of the fastener instantly releases reflector from the housing, or fastens reflector securely in place. No tools are needed—installing and servicing are greatly speeded. When reflector is removed, ballast and wiring are exposed for ease of maintenance and installation.

Finish

Housings are finished in baked white enamel. Reflectors are available with high quality white porcelain enamel finish, inside and out, or baked white enamel. Reflection factor: porcelain enamel 79%; baked enamel 89%.

Auxiliary Equipment

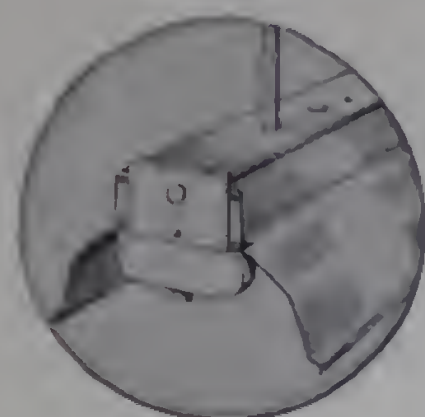
Fixtures are supplied wired, complete with FS-40 Watch Dog starters and approved tulamp high power factor ballasts which reduce stroboscopic effects to a minimum.

PORCELAIN		BAKED		Lamp Watts	Line Voltage	Approx. Watts Consumed	Dimensions (Inches)			Ship. Wt
Cat. No.	Price Each	Cat. No.	Price Each				Length	Width	Depth	
60 CYCLE										
4770	\$24.50	4670	\$22.00	2-40	110-125	97	49 ³ / ₁₆	11 ¹ / ₂	7 ¹ / ₄	28
4772	24.50	4672	22.00	2-40	220-250	93	49 ³ / ₁₆	11 ¹ / ₂	7 ¹ / ₄	27
*4773	29.85	*4673	27.55	2-40	110-125	108	49 ³ / ₁₆	11 ¹ / ₂	7 ¹ / ₄	32
25 CYCLE										
4774	33.50	4674	31.00	2-40	110-125	106	49 ³ / ₁₆	11 ¹ / ₂	7 ¹ / ₄	34
4776	33.50	4676	31.00	2-40	220-250	100	49 ³ / ₁₆	11 ¹ / ₂	7 ¹ / ₄	34
66 ² / ₃ CYCLE										
4777	24.50	4677	22.00	2-40	110-125	99	49 ³ / ₁₆	11 ¹ / ₂	7 ¹ / ₄	27

Accessories: No. 5200 Hanger Clamp—\$1.00 each.
No. 5201 Junction Box Clamp—\$1.25 each.
No. 3 Tensio Chain—\$4.70 per C. ft.
No. 689 Steel S-Hooks—\$4.50 per C.

*Equipped with Instant-Start ballast (no starter required).
Must be used with Instant-Start lamps.
Lamps are not included in prices.

GENERAL ELECTRIC "TWIN TURRET" LUMINAIRE



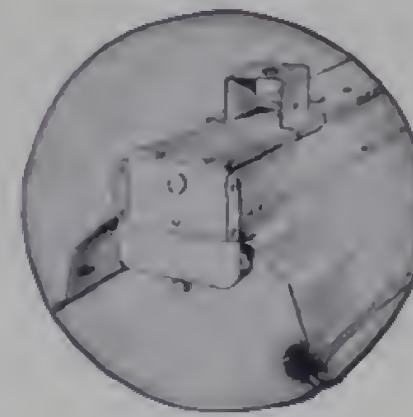
Conduit



Hanger Clamp



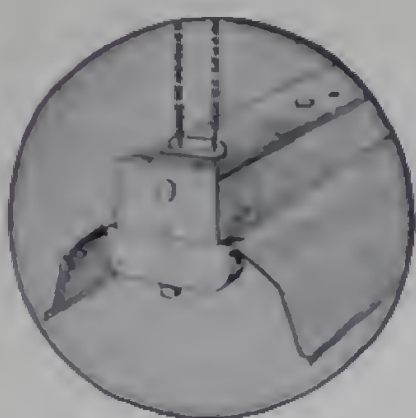
Junction Box Clamp



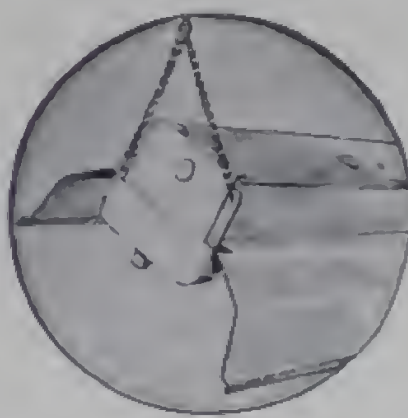
Surface Mounting



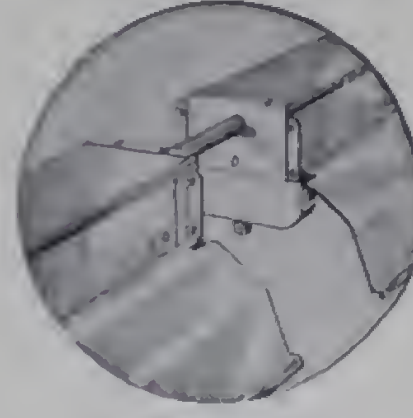
Chain



Bracket on Top



Angle



Continuous Wiring

Installation

Housing is provided with a shoulder for sliding hanger clamp which can be located at any point, thus making it unnecessary to position conduit exactly. Clamp is securely held by turning down one bolt, and is supplied with a hole for $\frac{1}{2}$ inch conduit. If desired, clamp may be mounted directly on ceiling. Junction box clamp, supplied with enclosing side plates, is available for use with conduit containing wiring. Top of housing has six knock-outs for $\frac{1}{2}$ inch conduit located in pairs on 22, 30 and 38 inch centres. Side brackets are supplied for chain or wire suspension. These brackets can be

removed and located on top of housing for chain or direct ceiling mounting. Easily accessible starter permits recessing.

Continuous Wiring

To mount in continuous rows, remove end plates by undoing three screws, and bolt fixtures together through eyelets in side brackets. Wiring is simplified by the large wire opening, which has the same cross-section as the housing. As an alternative, end plates may be left on fixture and knockouts only removed. Conduit can be connected between fixtures, through holes in end plates, to provide continuous wiring with any spacing of fixtures.

ILLUMINATION PERFORMANCE

Floor Area per Fixture— Square Feet	Mounting Height Above Floor	Room Finish†	FOOT-CANDLES*		
			Room Proportions‡		
			Wide	Medium	Narrow
35	7'-10'	Light	60	51	41
		Medium	56	47	37
		Dark	55	45	34
40	7'-10'	Light	53	45	36
		Medium	49	41	32
		Dark	48	39	30
50	8'-10'	Light	42	36	29
		Medium	39	33	26
		Dark	38	31	24
60	8'-10'	Light	35	30	24
		Medium	33	28	22
		Dark	32	26	20

*Foot-candles are calculated average in-service values, using a maintenance factor of .70 which allows 30% for depreciation due to dust collection and ageing of lamps.

Figures are based on the use of 60 cycle 4500°K White Lamps. For 60 cycle 3500°K White Lamps multiply values by 1.10. For 60 cycle 6500°K Daylight Lamps multiply values by .91. For 25 cycle lamps multiply 60 cycle values by .95.

Floor Area per Fixture— Square Feet	Mounting Height Above Floor	Room Finish†	FOOT-CANDLES*		
			Room Proportions‡		
			Wide	Medium	Narrow
70	9'-11'	Light	30	28	22
		Medium	28	26	20
		Dark	27	24	19
80	9'-11'	Light	26	24	19
		Medium	25	23	18
		Dark	24	21	17
90	10'-12'	Light	24	22	17
		Medium	23	20	16
		Dark	22	19	15
100	10'-12'	Light	22	19	16
		Medium	20	18	15
		Dark	19	17	14

†Light—Ceiling 75% or better reflection factor, walls 50%.

Medium—Ceiling 50% reflection factor, walls 30%.

Dark—Ceiling 30% reflection factor, walls 10%.

‡Wide—Room width is 4 times mounting height of units above floor.

Medium—Room width is 2 times mounting height of units above floor.

Narrow—Room width is about equal to mounting height of units above floor.

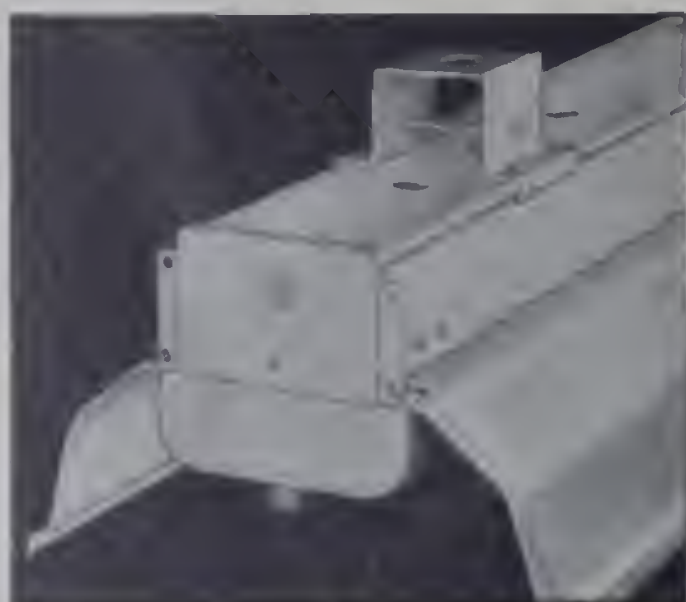
FEATURES OF "TWIN TURRET" LUMINAIRE



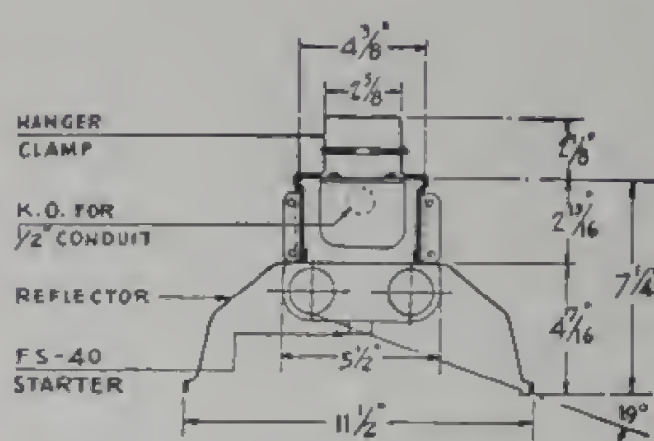
Detail of Quick Release Reflector



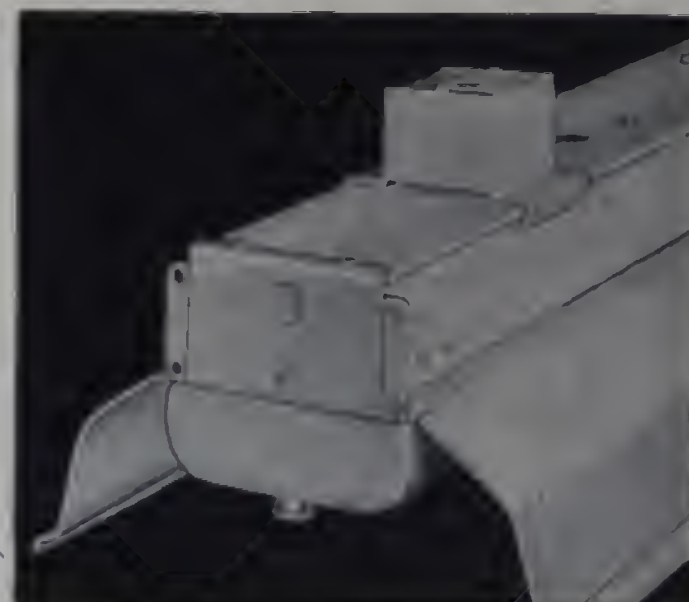
Detail of Twin Turret Lampholder



No. 5200 Hanger Clamp



Dimensional Details



No. 5201 Junction Box Clamp

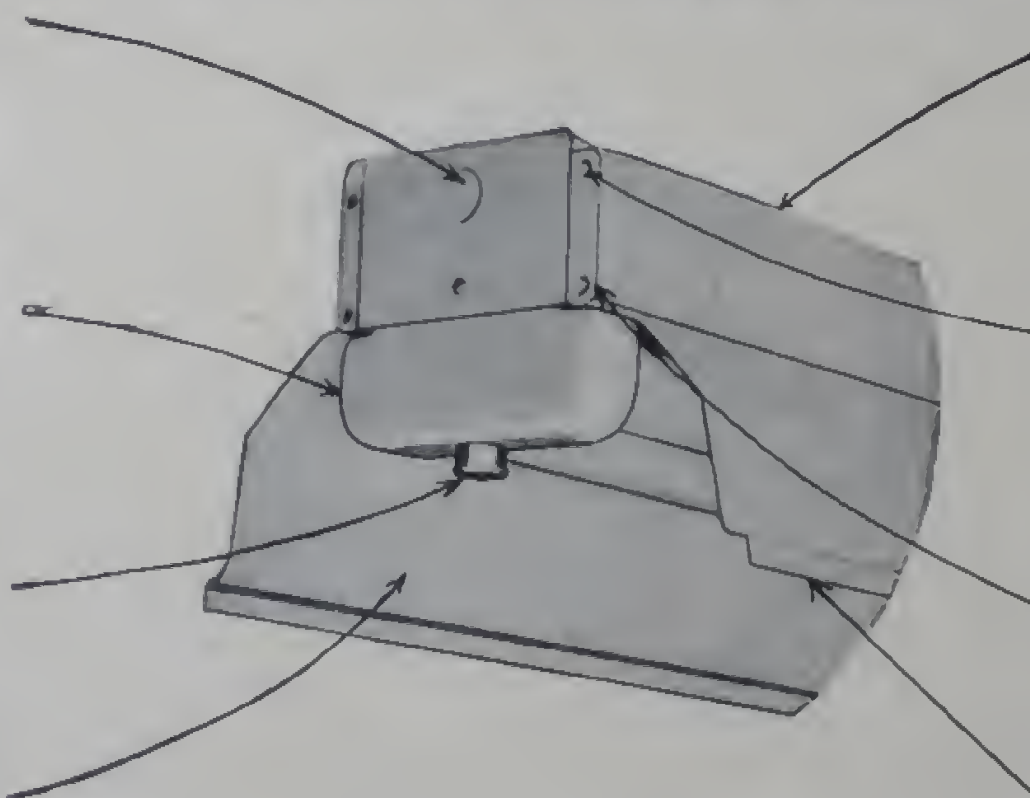
DETAILS OF CONSTRUCTION

Easily removed knockout provides hole for half-inch conduit.

Twin turret lampholder simplifies installation and maintenance.

Watch Dog starters readily accessible without removing lamps.

Reflector quickly detached from housing (by cam-type fasteners) without disturbing wiring.



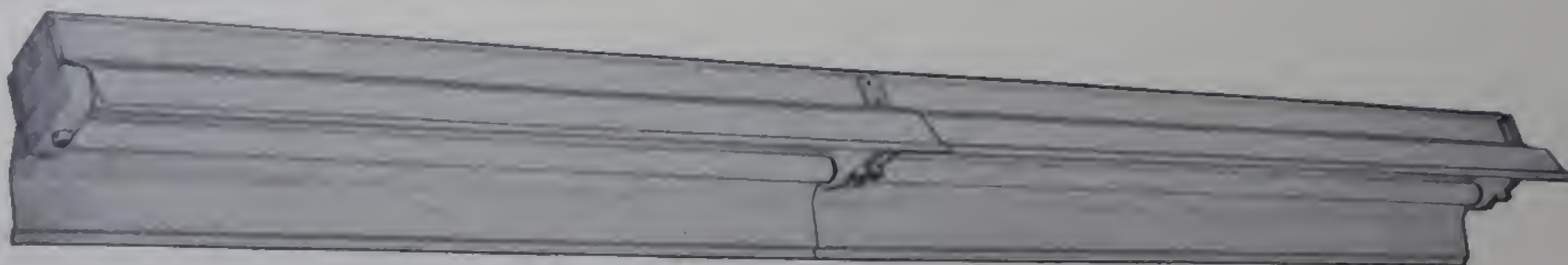
Six knockouts on top of housing.

Eyelets for chain or wire suspension.

Side brackets can be removed and mounted on top.

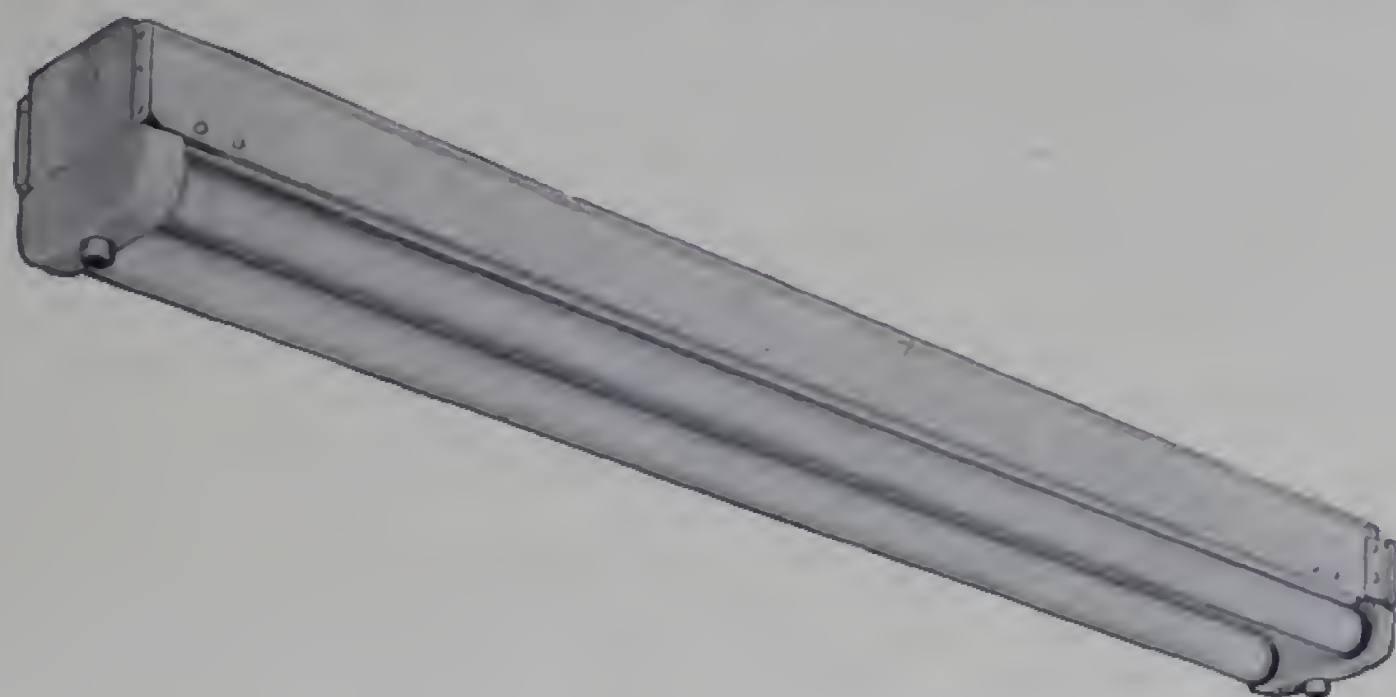
Edge of reflector double-folded for greater strength.

CONTINUOUS MOUNTING



Fixtures bolted together through eyelets for continuous mounting

GENERAL ELECTRIC "TWIN TURRET" CHANNEL LUMINAIRE



Suitable for use where wide distribution of light is required, with low mounting heights. Its narrowness makes it ideal for locations where space does not permit the use of regular RLM reflectors.

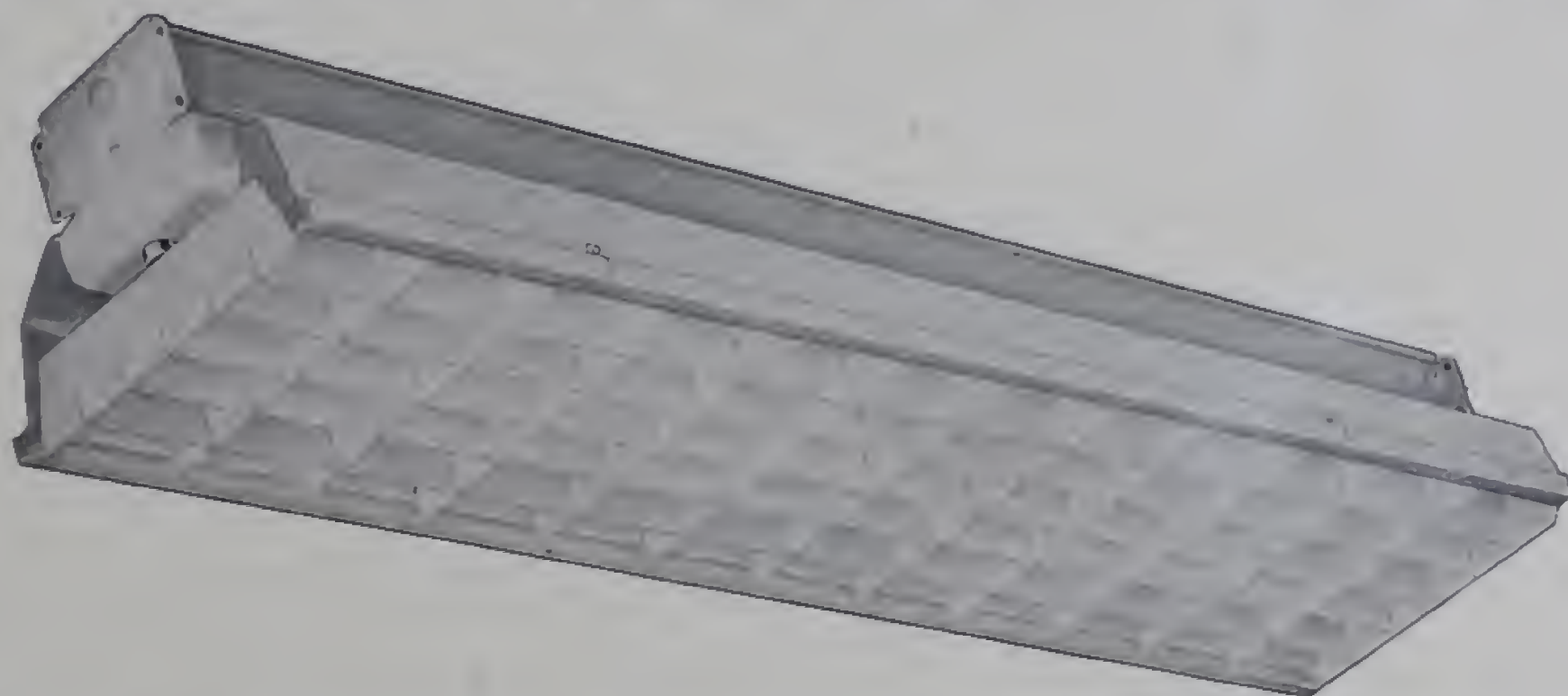
Similar in construction to the RLM Twin Turret luminaire, except that it is supplied with a flat reflector in place of the RLM reflector. Uses two 40 watt lamps.

Finished in white baked enamel. Overall dimensions: length $49\frac{3}{16}$ ", width $5\frac{1}{2}$ ", depth $4\frac{7}{8}$ ". Equipped with FS-40 Watch Dog starters and tulamp high power factor ballasts.

Cat. No.	Price Each	Line Voltage	Ship. Wt
60 CYCLE			
4680	\$20.75	110-125	25
4682	20.75	220-250	25
*4683	26.30	110-125	29
25 CYCLE			
4684	29.75	110-125	34
4686	29.75	220-250	34
66$\frac{2}{3}$ CYCLE			
4687	20.75	110-125	25

*Equipped with Instant-Start ballast (no starter required.) Must be used with Instant-Start lamps.
Lamps are not included in prices.

LOUVER FOR "TWIN TURRET" LUMINAIRE



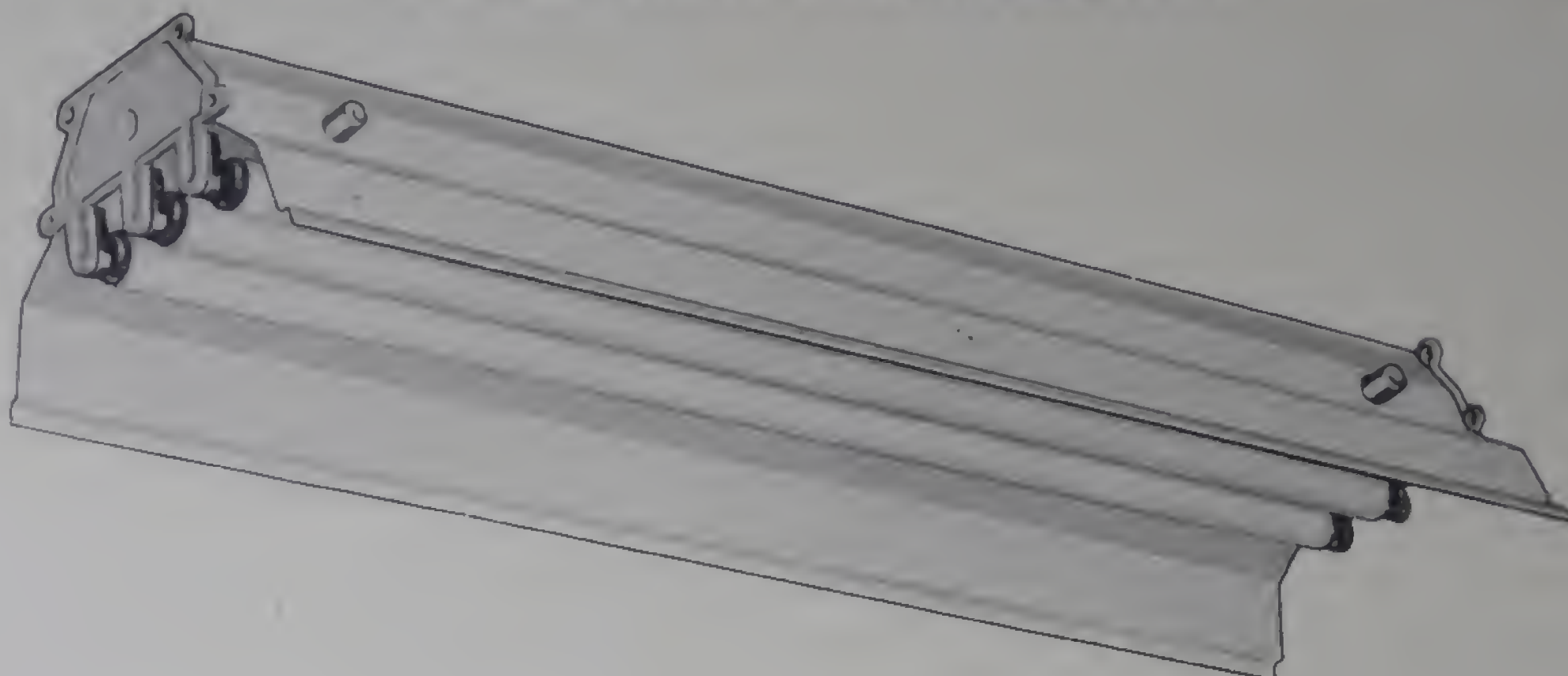
This louver is for use in industrial plants where additional lamp shielding is often found desirable for greater eye comfort in areas such as drafting rooms, offices, etc. The addition of this louver increases the shielding angle of General Electric Twin Turret luminaires to 45° crosswise and 30° parallel to the lamps.

Louver can be quickly and easily attached to luminaire without the necessity of drilling reflector.

By merely pressing two spring clips, the louver can be opened instantly and hinged downward for convenience in relamping and cleaning. Rigidly constructed of heavy gauge metal, finished in baked white enamel.

Cat. No.	Price Each	Dimensions (Inches)			Ship. Wt
		Length	Width	Depth	
5002	\$7.00	48	$11\frac{3}{4}$	$2\frac{1}{2}$	4

GENERAL ELECTRIC 2-40 AND 3-40 WATT INDUSTRIAL LUMINAIRES



General Electric 2-40 and 3-40 watt industrial fluorescent luminaires provide cool, almost glare-free light for general and localized illumination of industrial areas. Increased production efficiency, better working conditions, together with simplified installation and maintenance, are but a few of the benefits a skilfully designed installation of these efficient luminaires provides.

Design

Carefully engineered to RLM specifications. Light source is adequately shielded by reflector which has a 13 degree shielding angle from horizontal. Lamps in the 2-40 watt fixture are spaced on 5 inch centres in accordance with RLM specifications.

Construction

Sturdily built to rigid General Electric standards to ensure long life and trouble free operation. Die-formed platforms of 18 gauge steel and cast aluminum end plates ensure rigid, accurate mounting of sockets.

Durable one-piece reflector uses quick-release cam type fasteners. A quarter turn of the fastener instantly releases reflector from the housing, or fastens reflector securely in place. No tools are needed — installing and servicing are greatly speeded. When reflector is removed, ballast and wiring are exposed for ease of maintenance and installation.

To eliminate chipping of enamel, lampholder openings in reflector are carefully designed with rounded corners, free from narrow brittle sections.

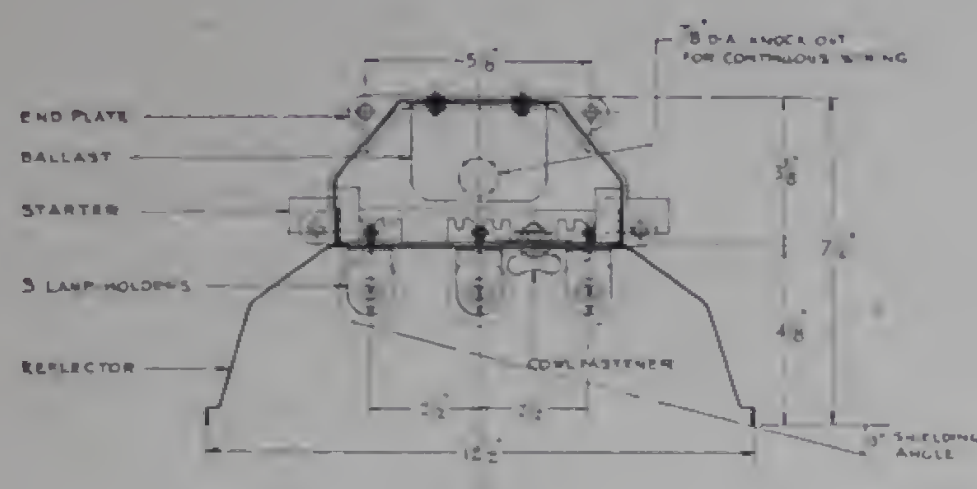
Cat. No.	Price Each	Lamp Watts	Line Voltage	Approx. Watts Consumed	Dimensions (Inches)			Ship. Wt
					Length	Width	Depth	
60 CYCLE								
4609	\$22.00	2-40	110-125	97	48½	12½	7½	29
4611	22.00	2-40	220-250	93	48½	12½	7½	28
†4612	27.55	2-40	110-125	108	48½	12½	7½	33
4642	32.50	3-40	110-125	148	48½	12½	7½	33
25 CYCLE								
4618	31.00	2-40	110-125	106	48½	12½	7½	35
4620	31.00	2-40	220-250	100	48½	12½	7½	35
4631	45.50	3-40	*208	140	48½	12½	7½	42
66⅔ CYCLE								
4666	22.00	2-40	110-125	99	48½	12½	7½	28
4636	32.50	3-40	110-125	148	48½	12½	7½	32

Accessories: No. 3 Tenso Chain—\$4.70 per C ft.
No. 689 steel S-hooks—\$4.50 per C.

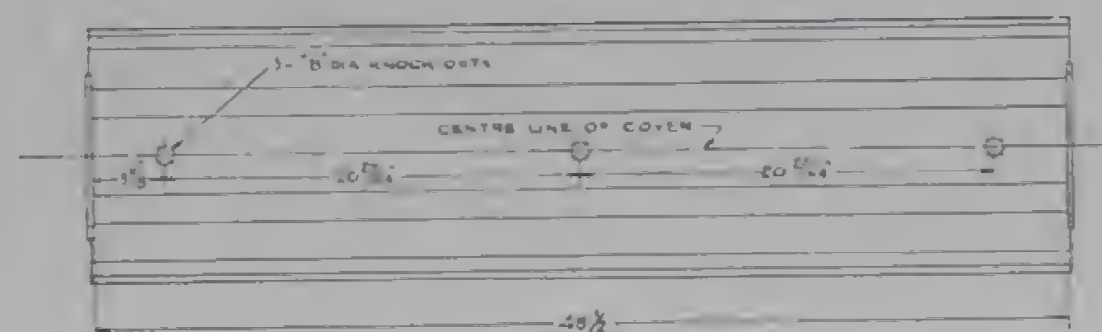
*3-Phase.

†Equipped with Instant-Start ballast (no starters required). Must be used with Instant-Start lamps. Lamps are not included in prices.

GENERAL ELECTRIC 2-40 AND 3-40 WATT INDUSTRIAL LUMINAIRE



Cross Section



Plan of Housing

Finish

Reflectors and housings are finished, inside and out, in baked white synthetic enamel.

Auxiliary Equipment

Fixtures are supplied wired, complete with FS-40 Watch Dog starters mounted in the sides of the housing, and approved high power factor ballasts.

Installation

May be mounted flush or suspended. Top of housing has three knockouts for $\frac{1}{2}$ inch conduit. For chain or wire suspension there are eyelets in

the end castings. Fixture may be mounted at an angle if desired. For flush mounting all projections have been removed from top surface so that housing can be bolted direct to ceiling.

Continuous Mounting

To mount in continuous rows, remove knockouts from end castings and bolt fixtures together through eyelets. No nipple required. Conduit can be connected between fixtures, through holes in endplates, to provide continuous wiring with any spacing of fixtures.

ILLUMINATION PERFORMANCE

Three lamp 40-watt luminaire
(For two lamp luminaire, multiply foot candle values by 0.75)

Floor Area per Fixture— Square Feet	Mounting Height Above Floor	Room Finish†	FOOT-CANDLES*		
			Room Proportions‡		
			Wide	Medium	Narrow
40	8'-10'	Light	70	61	47
		Medium	67	56	43
		Dark	64	53	38
50	8'-10'	Light	56	49	38
		Medium	53	45	34
		Dark	51	42	31
60	8'-10'	Light	47	41	32
		Medium	45	38	28
		Dark	43	35	25
70	9'-11'	Light	41	35	26
		Medium	39	32	23
		Dark	37	30	21
80	9'-11'	Light	36	31	23
		Medium	34	28	21
		Dark	32	26	19

*Foot-candles are calculated average in-service values, using a maintenance factor of .70 which allows 30% for depreciation due to dust collection and ageing of lamps. Figures are based on the use of 60 cycle 4500°K white lamps. For 60 cycle 3500°K white lamps, multiply values by 1.10. For 60 cycle 6500°K Daylight lamps, multiply values by .91. For 25 cycle lamps multiply 60 cycle values by .95.

Floor Area per Fixture— Square Feet	Mounting Height Above Floor	Room Finish†	FOOT-CANDLES*		
			Room Proportions‡		
			Wide	Medium	Narrow
90	10'-12'	Light	32	28	22
		Medium	30	26	20
		Dark	29	24	18
100	10'-12'	Light	29	25	20
		Medium	27	23	18
		Dark	26	22	17
110	10'-14'	Light	26	22	19
		Medium	24	20	17
		Dark	23	19	15
120	10'-14'	Light	23	20	17
		Medium	22	19	15
		Dark	21	18	14
130	11'-15'	Light	22	19	16
		Medium	20	17	14
		Dark	19	16	13

†Light—Ceiling 75% or better reflection factor; Walls 50%.

Medium—Ceiling 50% reflection factor; Walls 30%.

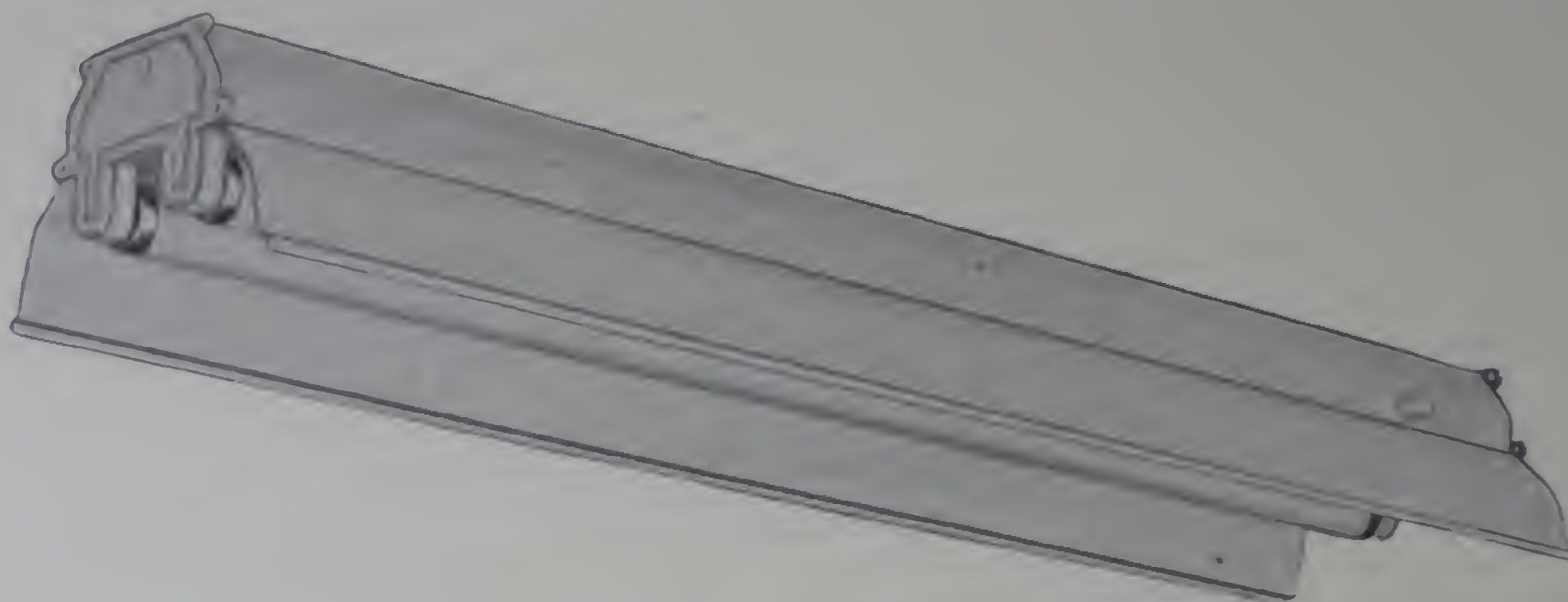
Dark—Ceiling 30% reflection factor; walls 10%.

‡Wide—Room width is 4 times mounting height of units above floor.

Medium—Room width is 2 times mounting height of units above floor.

Narrow—Room width is about equal to mounting height of units above floor.

GENERAL ELECTRIC 2-85 WATT INDUSTRIAL LUMINAIRE



The General Electric 2-85 watt industrial fluorescent fixture provides cool, almost glare-free light for general illumination of industrial areas. It is particularly suited for high bay mounting, or for wider spacing of units or rows. This economical and efficient fixture makes possible high levels of illumination for quick, accurate, easy seeing at a reasonable initial cost.

Increased production efficiency, better working conditions, together with simplified installation and maintenance, are but a few of the benefits a skillfully designed installation of General Electric fluorescent fixtures provides.

Design

Carefully engineered to RLM Standards specifications. Light source is adequately shielded by reflector which has a 13 degree shielding angle from horizontal.

Construction

Sturdily built to rigid General Electric standards to ensure long life and trouble free operation. All auxiliary equipment is mounted in the housing for ease of installation and maintenance. Cast aluminum end plates with extensions ensure rigid, accurate mounting of sockets. Durable one-piece reflector is easily detached from housing by three wing nuts which provide positive, anti-vibration locking of reflector.

Finish

Reflector and housing are finished inside and out, in baked white synthetic enamel.

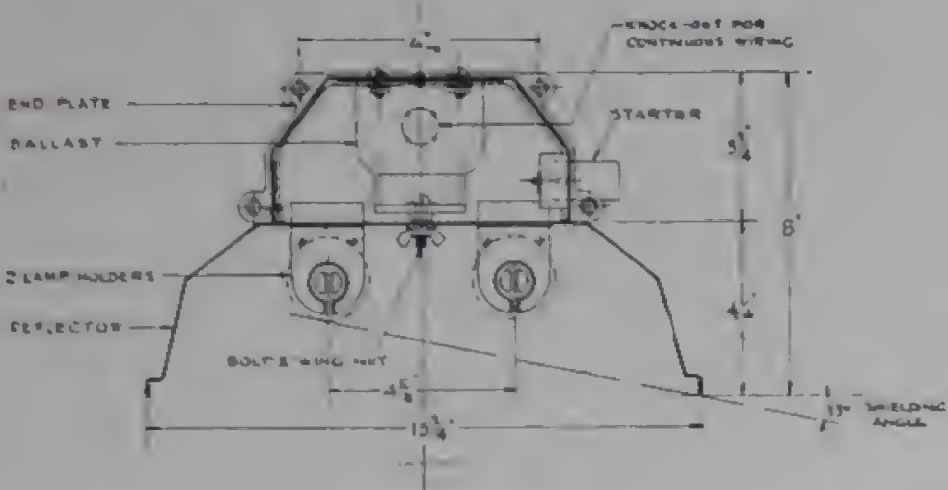
Installation

May be mounted flush or suspended. Top of housing has two knockouts for $\frac{1}{2}$ inch conduit, on 30 inch centres. For chain or wire suspension there are eyelets in the end castings. Fixture may be

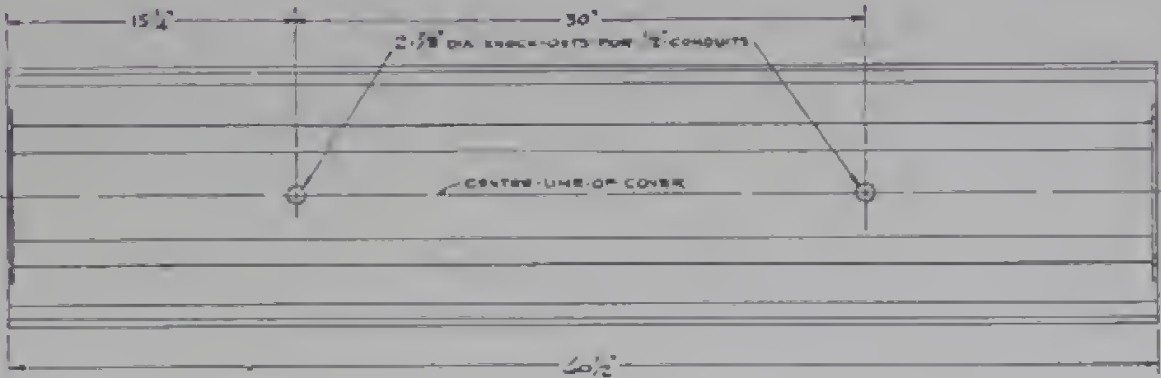
Cat. No.	Price Each	Cycles	Lamp Watts	Line Voltage	Approx. Watts Consumed	Dimensions (Inches)			Ship. Wt
						Length	Width	Depth	
5609	\$39.00	60	2-85	110-125	202	60 $\frac{1}{2}$	13 $\frac{3}{4}$	8	45
5611	39.00	60	2-85	220-250	202	60 $\frac{1}{2}$	13 $\frac{3}{4}$	8	45

Accessories: No. 3 Tenso Chain—\$4.70 per C ft.
No. 689 steel S-hooks—\$4.50 per C.
Lamps are not included in prices.

GENERAL ELECTRIC 2-85 WATT INDUSTRIAL LUMINAIRE



Cross Section



Plan of Housing

mounted at an angle if desired. For flush mounting all projections have been removed from top surface so that housing can be bolted direct to ceiling. During installation, reflector is easily removed making all wiring readily accessible for connections.

Continuous Mounting

To mount in continuous rows, remove knockouts from end castings and bolt fixtures together through

eyelets. No nipple required. Conduit can be connected between fixtures, through holes in endplates, to provide continuous wiring with any spacing of fixtures.

Auxiliary Equipment

Fixtures are supplied wired, complete with FS-100 starters mounted in the sides of the cover and approved tulamp high power factor ballasts.

ILLUMINATION PERFORMANCE

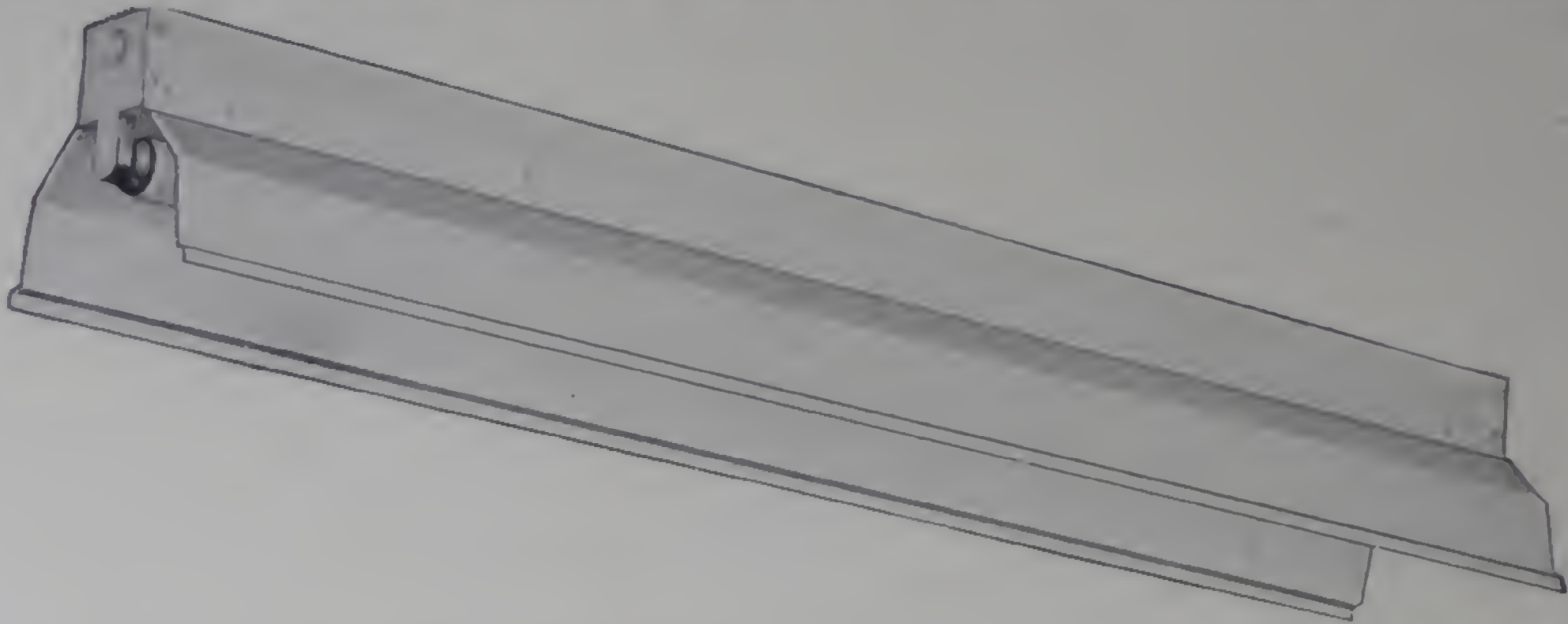
Floor Area per Fixture Sq. Ft.	Mounting Height Above Floor—Ft.	Room† Finish	FOOT-CANDLES*		
			Room Proportions‡		
			Wide	Medium	Narrow
50	8 to 10	Light	72	63	48
		Medium	67	56	43
		Dark	65	54	39
60	8 to 10	Light	61	52	40
		Medium	57	48	36
		Dark	55	45	32
70	9 to 11	Light	52	44	33
		Medium	49	41	30
		Dark	47	38	26
80	9 to 11	Light	46	39	30
		Medium	43	37	27
		Dark	41	34	24
90	10 to 12	Light	40	35	28
		Medium	38	33	25
		Dark	37	31	23

*Foot-candles are calculated average in-service values, using a maintenance factor of .70 which allows 30% for depreciation due to dust collection and ageing of lamps. Figures are based on the use of 4500°K White lamps. For 6500°K Daylight lamps, multiply values by .97. For 3500°K White lamps, multiply values by 1.05.

Floor Area per Fixture Sq. Ft.	Mounting Height Above Floor—Ft.	Room† Finish	FOOT-CANDLES*		
			Room Proportions‡		
			Wide	Medium	Narrow
100	10 to 12	Light	36	31	25
		Medium	34	29	23
		Dark	33	27	21
110	10 to 14	Light	33	28	23
		Medium	31	26	21
		Dark	30	24	19
120	10 to 14	Light	30	26	21
		Medium	28	24	19
		Dark	27	22	17
130	11 to 15	Light	28	24	20
		Medium	26	22	18
		Dark	25	21	16
140	11 to 15	Light	26	22	18
		Medium	24	20	16
		Dark	23	19	15

†Light—Ceiling, 75% or better reflection factor; walls, 50%.
Medium—Ceiling, 50% reflection factor; walls, 30%.
Dark—Ceiling, 30% reflection factor; walls 10%.
‡Wide—Room width is 4 times mounting height of units above floor.
Medium—Room width is 2 times mounting height of units above floor.
Narrow—Room width is about equal to mounting height of units above floor.

GENERAL ELECTRIC 1-40 WATT INDUSTRIAL LUMINAIRE



Ideal for local lighting of machines, work-benches, etc. Reflector is designed to provide adequate shielding of light source.

Strongly built of heavy gauge metal, finished inside and out in baked white enamel. End plate extensions provide protection for sockets and ensure proper spacing. Reflector fastens to channel by means of two screws. Knockouts in end plates are provided for continuous mounting.

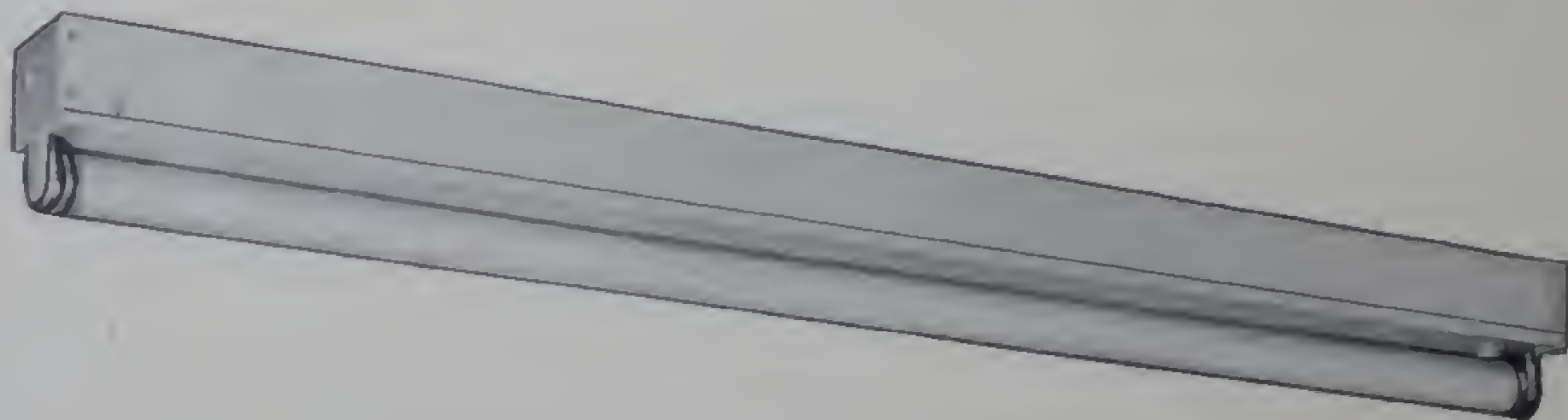
Available for 60 cycle, 110-125 volt operation only, high or low power factor. Supplied wired,

complete with ballast and FS-40 Watch Dog starter. Overall dimensions: length $48\frac{1}{8}$ ", width $8\frac{7}{8}$ ", depth $8\frac{5}{8}$ ".

Cat. No.	Price Each	Lamp Watts	Power Factor Per Cent	Ship. Wt
4601	\$16.00	1-40	90	12
4602	11.50	1-40	60	11

Lamps are not included in prices.

GENERAL ELECTRIC CHANNEL FIXTURE



This channel fixture will find many applications in stores and homes. Small in size and neat in appearance, it is suitable for store showcases, kitchens and playrooms, and for cove lighting installations.

Strongly constructed of heavy gauge metal, finished inside and out in baked white enamel. End plate extensions provide protection for sockets and ensure proper spacing. Reflector is fastened to channel by means of two easily-removed screws. Knockouts in end plates are provided for continuous mounting.

Available for 60 cycle, 110-125 volt operation only, high or low power factor. Supplied wired,

complete with ballast and starter (FS-40 Watch Dog in 40 Watt Fixtures; FS-2 in 20 Watt Fixtures.) Overall dimensions: length—20 watt, $24\frac{1}{8}$ "; 40 watt, $48\frac{1}{8}$ "; width $3\frac{7}{16}$ ", depth, channel only, $2\frac{5}{8}$ "; including lampholder, $4\frac{1}{4}$ ".

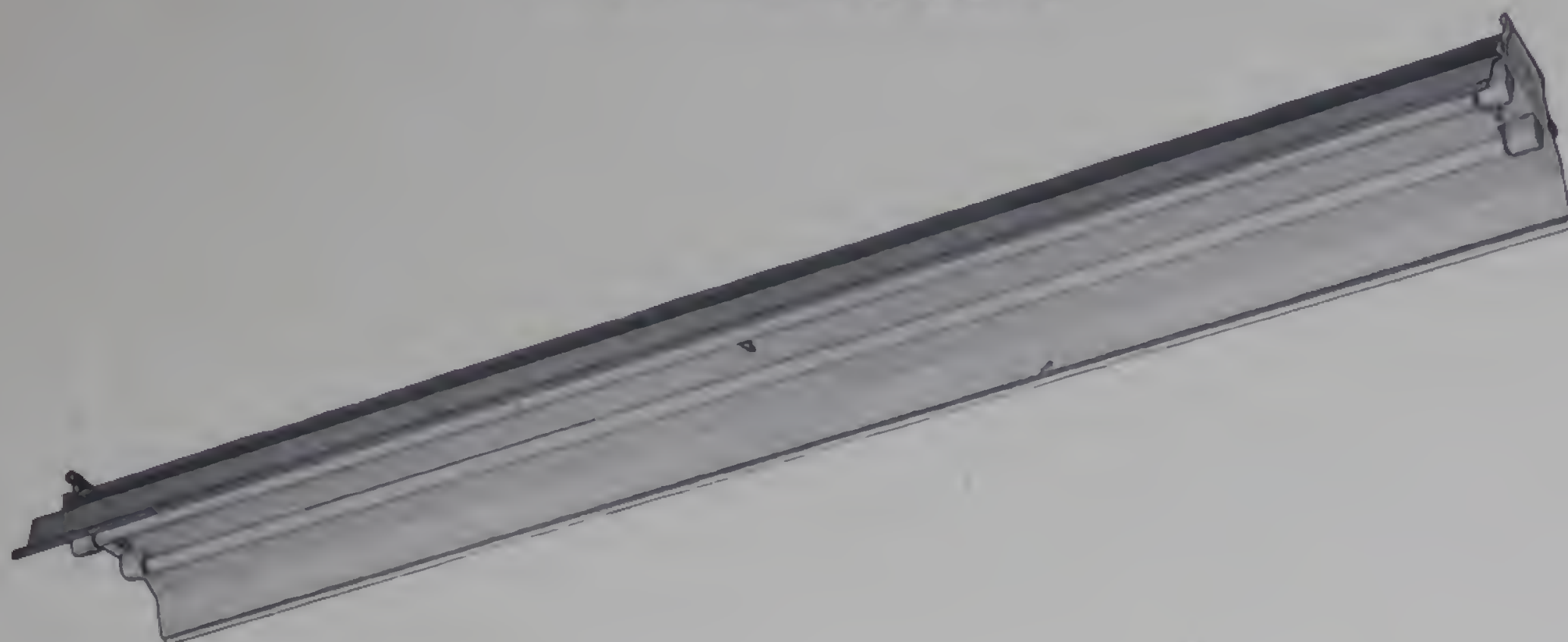
Cat. No.	Price Each	Lamp Watts	Power Factor Per Cent	Std Pkg	
				Qty	Wt
4655	\$10.00	1-20	90	2	12
4656	6.00	1-20	55	2	8
4605	14.50	1-40	90	1	10
4606	10.00	1-40	60	1	9
*4605-2	24.00	2-40	90	1	20

*Consists of two No. 4605 wired with one tulamp ballast. For end-to-end mounting.

Lamps are not included in prices.

GENERAL ELECTRIC INDUSTRIAL LUMINAIRE

USING SLIMLINE LAMPS



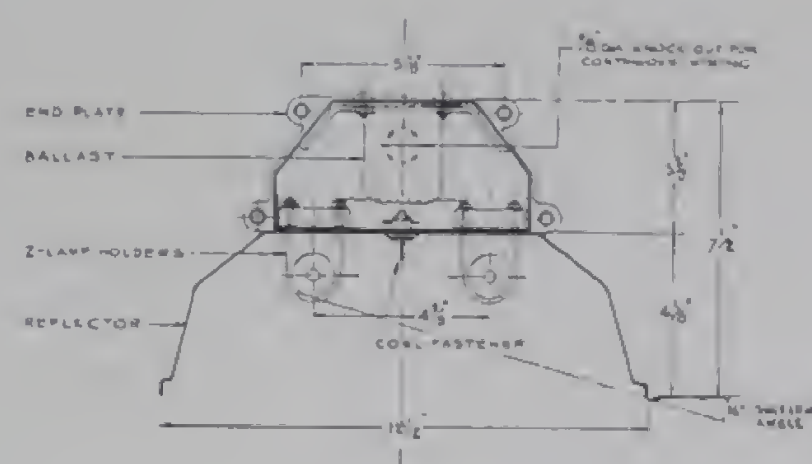
This General Electric luminaire provides high intensities of illumination for rapid, easy seeing at reasonable initial cost. Easy to install and efficient in operation, this luminaire is ideal for general illumination of industrial areas.

Luminaire accommodates two 96" Slimline lamps, and may be obtained for 200 or 300 milliamperere operation. No starters are required, thus making possible instant starting of lamps. Reflector provides 16° shielding of lamps.

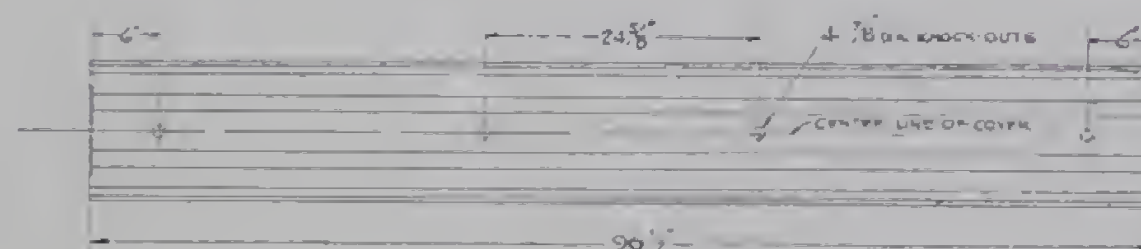
Construction

Sturdily built to ensure long, trouble-free life. One-piece reflector uses three quick-release cam-type fasteners, which require only a quarter turn to remove reflector from housing. When reflector is removed, ballast and wiring are exposed for ease of maintenance and installation. Lamp holders permit easy lamp insertion and prevent lamps from being dislodged.

Luminaire is finished inside and out in baked white enamel. Supplied wired, complete with approved high power factor tulamp ballast.



Cross Section



Plan of Housing

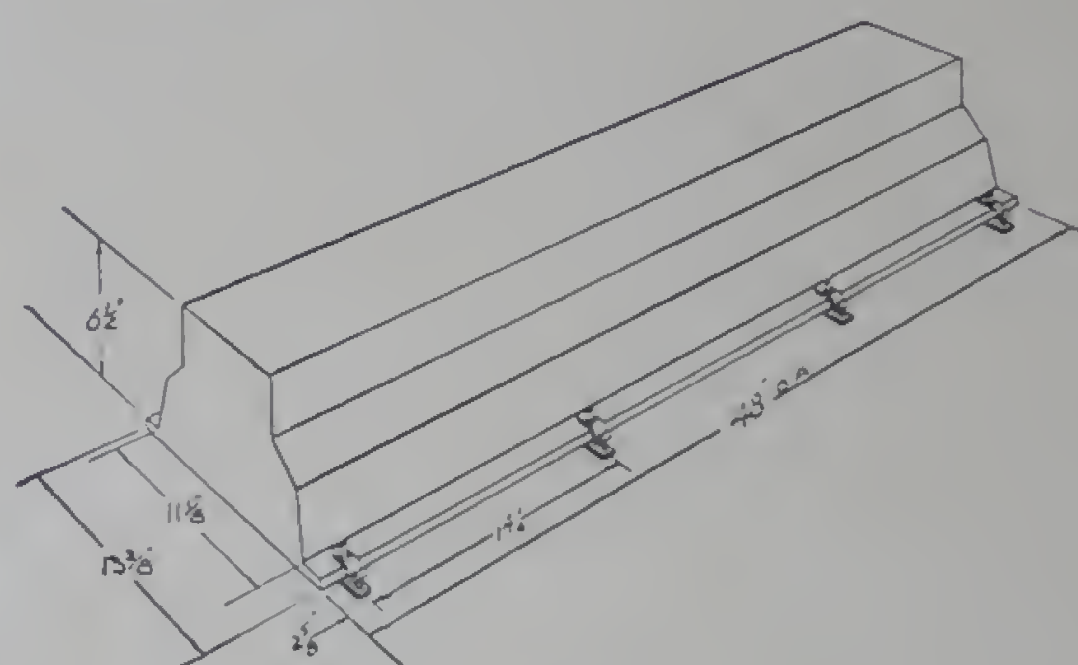
Installation

May be mounted flush or suspended. For pipe suspension, top of housing has four knockouts for 1/2" conduit. For chain or wire suspension there are eyelets in the end castings. To mount in continuous rows, remove knockouts from end castings and bolt fixtures together through eyelets.

* Cat. No.	Price Each	Lamp Current (M.A.)	Lamps	Line Voltage	Approx. Watts Consumed	Dimensions (Inches)			Ship. Wt
						Length	Width	Depth	
8620	\$49.50	200	2-96T8	110-125	134	96 1/2	12 1/2	7 1/2	64
8630	55.00	300	2-96T8	110-125	178	96 1/2	12 1/2	7 1/2	67

*Catalogue numbers are for 60 cycle operation. Lamps are not included in prices

"VAPORLUME" FIXTURE



Dimensions

Application

This luminaire is designed for use in non-hazardous locations where moisture or non-combustible dust is present. Its construction permits it to be used in spray booths and similar locations.

Construction

A quick-acting switch is incorporated into the fixture to open the circuit should the glass be broken or the door opened. This feature prevents unauthorized persons removing or installing lamps with the current turned on.

The fixture is made of heavy gauge steel, finished

in baked white enamel. The hinged door is well gasketed, and is equipped with a clear cover glass.

Supplied wired, complete with FS-4 starters and approved tulamp high power factor ballasts.

Installation

The luminaire is provided with four studs on each side, which enable it to be mounted in the roof of spray booths with the door opening underneath. Dimensions of ceiling opening: length, $48\frac{1}{4}$ "; width $11\frac{1}{2}$ ". For rod suspension, two $\frac{1}{2}$ " pipe flanges on 30" centers are located on the top of the housing.

Cat. No.	Price Each	Cycles	Lamp Watts	Line Voltage	Approx. Watts Consumed	Dimensions (Inches)			Ship. Wt
						Length	Width	Depth	
V460	\$74.80	60	2-40	110-125	97	48	$13\frac{3}{8}$	7	60
V425	86.80	25	2-40	110-125	106	48	$13\frac{3}{8}$	7	70

Lamps are not included in prices.

FIXTURE SUSPENSIONS

"HYDEE" HANGER

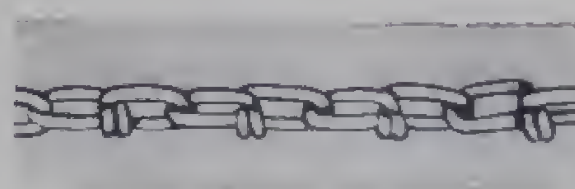


The "Hydee" hanger can be used with all industrial fluorescent fixtures arranged for chain suspension and furnished with two-wire cord and plug. Installation is simplified and speeded with this hanger.

Two screws hold the "Hydee" hanger to all standard 3¼ or 4 inch outlet boxes or plaster rings. Furnished complete including receptacle for two-prong plug, two 5 ft. chains, "S" hooks and cord clips.

Cat. No.	Price Each	Standard Package	
		Quantity	Weight
9988	\$1.65	1	2

FIXTURE CHAIN



Made of heavy wire, finished hot-dip galvanized.

Cat. No.	Price C Feet	Standard Package	
		Quantity	Weight
3 Tenso	\$4.70	500 ft.	.....

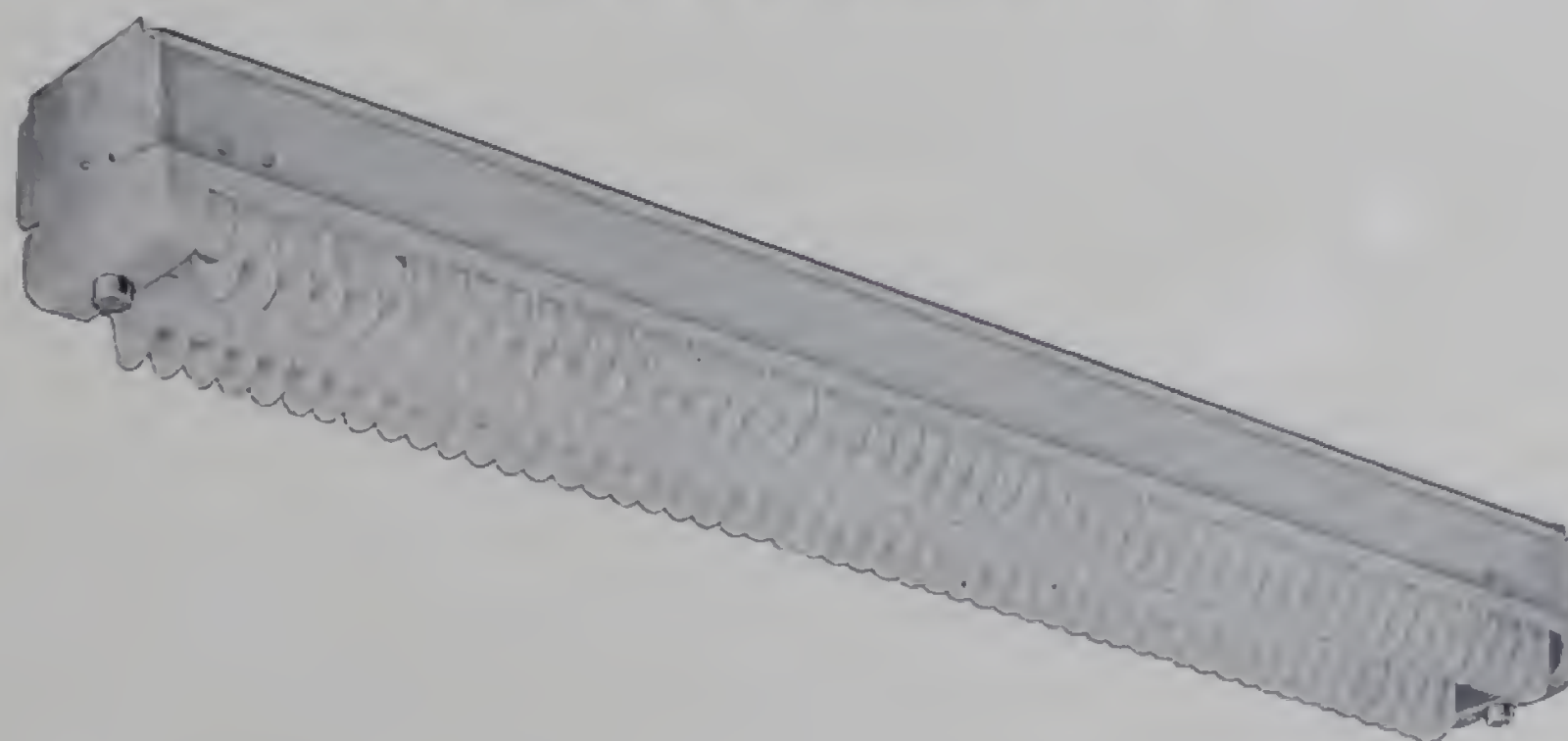
"S" HOOK



Made of ⅛ inch diameter galvanized wire.

Cat. No.	Price Per C	Standard Package	
		Quantity	Weight
689	\$4.50	100	10

CLIP-ON LOUVER



This louver provides excellent longitudinal shielding, as well as improving the appearance of all exposed lamp fixtures. Easily attached by spring clips; no bolts, screws or tools required. Made of aluminum, finished in baked white enamel.

Can be used with industrial and exposed lamp commercial fixtures. Where the end plate con-

struction does not permit easy attachment of the standard length louver, it can readily be shortened by cutting off one or two fins.

Cat. No.	Price Each	Length	Std Pkg	
			Qty	Wt
711-L	\$2.70	48"	12	10
711-LK	1.35	24"	24	10

WHEELER DUREX REFLECTORS



RLM Standard Dome



Shallow Dome



RLM Deep Bowl



RLM 30° Angle

Durex reflectors represent the latest development in industrial incandescent lighting equipment. The threaded neck of the reflector screws

into the die-cast canopy, providing a secure grip without the necessity of set screws. No washers, locknuts or yokes are required.

Socket is firmly attached to canopy by two screws which fit into bayonet holes in the socket. Porcelain socket shell screws on and off easily, exposing contact screws for ready wiring. Reflectors are porcelain enamelled steel, green outside, white inside. Canopies are finished in natural aluminum.

Both Durex canopies are interchangeable with any of the Durex reflectors. Durex fixtures can be ordered in separate units of canopies and reflectors, or in combination assemblies.



PENDENT CANOPY

Tapped for 1/2" Pipe. Overall Height 1 1/2"



Cat. No.	Price Each	Socket	Std Pkg	
			Qty	Wt
1022	\$1.80	Med	10	14
1023	2.70	Mog	5	9

OUTLET BOX CANOPY

For 4" Outlet Boxes. Overall Height 1"



Cat. No.	Price Each	Socket	Std Pkg	
			Qty	Wt
1026	\$1.80	Med	10	17
1027	2.70	Mog	5	11

Lamp Watts	Dimensions (Inches)		Socket	REFLECTOR ONLY				REFLECTOR AND PENDENT CANOPY			REFLECTOR AND OUTLET BOX CANOPY		
	Dia	Hgt		Cat. No.	Price Each	Std Pkg		Cat. No.	Price Each	Pkg Wt	Cat. No.	Price Each	Pkg Wt
						Qty	Wt						
RLM STANDARD DOME													
100	12	6 ¹ / ₂	Med	1042	\$2.76	10	33	1212	\$4.56	46	1232	\$4.56	48
200	16	8 ³ / ₄	Med	1046	3.84	5	24	1216	5.64	31	1236	5.64	32
300-500	18	10	Mog	1048	4.62	5	32	1218	7.32	39	1238	7.32	40
750-1500	20	13	Mog	1049	7.26	5	37	1219	9.96	46	1239	9.96	47
SHALLOW DOME													
100	12	5 ⁷ / ₈	Med	1052	\$2.76	10	26	1222	\$4.56	38	1242	\$4.56	40
200	16	7 ⁷ / ₈	Med	1056	3.84	5	18	1226	5.64	24	1246	5.64	25
RLM DEEP BOWL													
100	8	6 ⁷ / ₈	Med	1060	\$2.46	10	20	1136	\$4.26	31	1142	\$4.26	33
200	10	9 ¹ / ₄	Med	1062	3.06	10	25	1138	4.86	36	1144	4.86	38
RLM 30° ANGLE													
100	8	8 ¹ / ₄	Med	1070	\$2.28	10	20	1170	\$4.08	32	1190†	\$4.08	32
150-200*	10	10 ¹ / ₈	Med	1079	2.94	10	26	1179	4.74	38	1199†	4.74	38
300-500	14	13 ⁵ / ₈	Mog	1072	4.14	5	30	1172	6.84	38	1192†	6.84	40

*Not R.L.M. approved with 200 watt lamp.

†Outlet box canopies not recommended for angle reflectors.

WHEELER DURATACH REFLECTORS



RLM Standard Dome



Shallow Dome



RLM Deep Bowl



RLM 30° Angle

The Duratach separable socket construction allows unit removal of lamp and reflector for cleaning, re-lamping or interchanging of fixtures without disturbing wiring connections.

The porcelain socket cap accommodates all medium and mogul base Duratach reflectors, thus permitting extreme flexibility of lighting equipment. Socket cap is attached to die-cast canopy by two screws which fit into bayonet holes in the cap. Reflectors are porcelain enameled steel, green outside, white inside. Canopies are finished in natural aluminum. Reflector with lamp and socket body all in place is screwed into canopy as a complete unit.



PENDENT CANOPY

Tapped for 1/2" Pipe. Overall Height 1 1/2"



Cat. No.	Price Each	Socket	Std Pkg	
			Qty	Wt
4230	\$1.26	Med	10	15
4230	1.26	Mog	10	15

OUTLET BOX CANOPY

For 4" Outlet Boxes. Overall Height 1"



Cat. No.	Price Each	Socket	Std Pkg	
			Qty	Wt
4231	\$1.26	Med	10	17
4231	1.26	Mog	10	17

Lamp Watts	Dimensions (Inches)		Socket	REFLECTOR ONLY				REFLECTOR AND PENDENT CANOPY			REFLECTOR AND OUTLET BOX CANOPY		
	Dia	Hgt		Cat. No.	Price Each	Std Pkg		Cat. No.	Price Each	Pkg Wt	Cat. No.	Price Each	Pkg Wt
						Qty	Wt						

RLM STANDARD DOME

100	12	7 1/2	Med	4202R	\$4.68	10	36	4202	\$5.94	51	4202-OB	\$5.94	53
200	16	9 3/4	Med	4204R	5.76	5	27	4204	7.02	34	4204-OB	7.02	35
300-500	18	11	Mog	4205R	7.44	5	36	4205	8.70	43	4205-OB	8.70	44
750-1500	20	14	Mog	4206R	10.08	5	41	4206	11.34	48	4206-OB	11.34	49

SHALLOW DOME

100	12	6 7/8	Med	4208R	\$4.68	10	33	4208	\$5.94	48	4208-OB	\$5.94	50
200	16	8 7/8	Med	4210R	5.76	5	38	4210	7.02	45	4210-OB	7.02	46

RLM DEEP BOWL

100	8	7 7/8	Med	4214R	\$4.38	10	26	4214	\$5.64	41	4214-OB	\$5.64	43
200	10	10 1/4	Med	4216R	4.98	10	31	4216	6.24	46	4216-OB	6.24	48

RLM 30° ANGLE

100	8	9 1/4	Med	4219R	\$4.20	10	26	4219	\$5.46	41	4219-OB†	\$5.46	43
150-200*	10	11 1/8	Med	4220R	4.86	10	32	4220	6.12	47	4220-OB†	6.12	49
300-500	14	14 5/8	Mog	4222R	6.96	5	34	4222	8.22	41	4222-OB†	8.22	43

*Not R.L.M. approved with 200 watt lamp.

†Outlet box canopies not recommended for angle type reflectors.

WHEELER SHADEHOLDER REFLECTORS

For "Snap-Tite" Holders or any Standard 2 1/4 inch Shadeholder



RLM Standard Dome



Shallow Dome



RLM Deep Bowl



RLM 30° Angle

Wheeler shadeholder reflectors are available in four styles: RLM standard dome, shallow dome, RLM deep bowl, and RLM 30° angle. They are designed for use with "Snap-Tite" holders or any standard 2 1/4 inch shadeholder. Reflectors are porcelain enamelled steel, green outside, white inside.

"Snap-Tite" Holders

These holders are simple to attach and effective in results. When used with the proper socket, correct lamp position in the reflector is obtained.

To attach either of the styles of "Snap-Tite" holders to a reflector, keep the rivet heads in collar of holder in alignment with slots in reflector neck and press down on the holder until its bronze spring lugs snap into position in the reflector. When this occurs, the holder is rigidly attached to the reflector and ready for connecting to the socket.

SHADEHOLDERS

For Standard Brass Shell Socket with "Uno" Thread



Type "J" Holder

Cat. No.	Price Each	Std Pkg	
		Qty	Wt
25	\$0.30	10	1

For Porcelain or Composition Socket



Type "Q" Holder

Cat. No.	Price Each	Std Pkg	
		Qty	Wt
27	\$0.30	10	1

Lamp Watts	Dimensions (Inches)		Socket	REFLECTOR ONLY				REFLECTOR AND "J" HOLDER		REFLECTOR AND "Q" HOLDER	
	Dia	Hgt		Cat. No.	Price Each	Std Pkg		Cat. No.	Price Each	Cat. No.	Price Each
						Qty	Wt				
RLM STANDARD DOME											
100	12	5½	Med	HC-100	\$2.64	10	22	HJ-100	\$2.94	HQ-100	\$2.94
200	16	7¾	Med	HEC-200	3.60	10	34	HEJ-200	3.90	HEQ-200	3.90
SHALLOW DOME											
100	12	3½	Med	254	\$1.62	10	20	254-J	\$1.92	254-Q	\$1.92
150-200*	14	3¾	Med	255	2.10	10	22	255-J	2.40	255-Q	2.40
RLM DEEP BOWL											
100	8	5⅞	Med	PC-100	\$2.22	10	15	PJ-100	\$2.52	PQ-100	\$2.52
200	10	8	Med	PEC-200	3.06	10	19	PEJ-200	3.36	PEQ-200	3.36
RLM 30° ANGLE											
100	8	7¼	Med	NC-100	\$1.98	10	12	NJ-100	\$2.28	NQ-100	\$2.28
150-200*	10	9⅛	Med	NEC-150	2.70	10	20	NEJ-150	3.00	NEQ-150	3.00

*Not R.L.M. approved with 200 watt lamp.

WHEELER ONE-PIECE SOLID NECK REFLECTORS



RLM Standard Dome



Shallow Dome



RLM Deep Bowl



RLM 30° Angle

Application

These reflectors are recommended for both indoor and outdoor use in locations where quick removal or interchangeability of reflectors is not important or necessary.

Construction

The neck construction of these reflectors provides a rugged one piece fixture. The two piece porcelain socket is fastened to a die-cast yoke with a deep hexagonal shoulder, which fits an opening in the top of the reflector neck and is securely clamped by a die-cast locknut. Reflectors are porcelain enameled steel, green outside, white inside.

Installation

To mount reflector to conduit, remove locknut, dropping yoke and socket out of reflector. Remove socket body from yoke, leaving socket cap in place. Slide locknut, washer and reflector over conduit in that order. Screw yoke, with socket cap attached, to conduit. Make wiring connections to socket terminals and replace socket body. Lower reflector, washer and locknut. Engage yoke and locknut, threads of which are right hand, permitting complete fixture to be tightened.

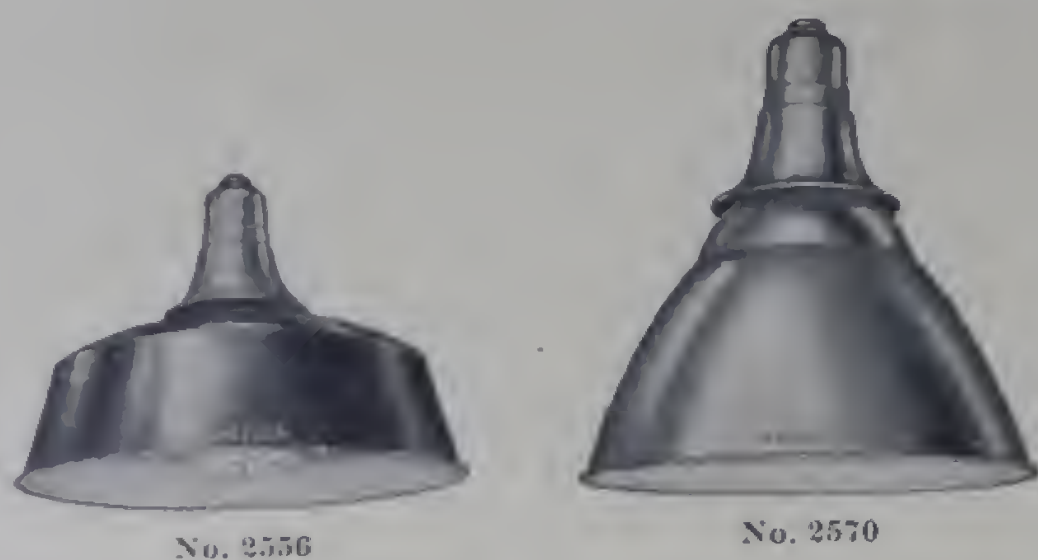
Yokes are tapped $\frac{1}{2}$ " standard, $\frac{3}{4}$ " when specified at no increase in price.

Cat. No.	Price Each	Lamp Watts	Dimensions (Inches)		Socket	Std Pkg	
			Diam	Height		Qty	Wt
RLM STANDARD DOME							
HS-100	\$4.56	100	12	8 $\frac{1}{4}$	Med	10	36
HES-200	5.64	200	16	10 $\frac{1}{2}$	Med	5	23
HES-500	7.32	300-500	18	11 $\frac{7}{8}$	Mog	5	30
HES-1000	9.96	750-1500	20	15	Mog	5	45
SHALLOW DOME							
DS-100	\$4.56	100	12	7 $\frac{3}{4}$	Med	10	32
DES-200	5.64	200	16	9 $\frac{3}{4}$	Med	5	20
RLM DEEP BOWL							
PS-100	\$4.26	100	8	8 $\frac{5}{8}$	Med	10	25
PES-200	4.86	200	10	11	Med	10	32
RLM 30° ANGLE							
NS-100	\$4.08	100	8	10	Med	10	26
NES-150	4.74	150-200*	10	11 $\frac{7}{8}$	Med	10	29
NES-500	6.84	300-500	14	15 $\frac{3}{8}$	Mog	5	25

*Not R.L.M. approved with 200 watt lamp.

WHEELER REFLECTORS

For 400-Watt Mercury Vapour Lamp



No. 2556

No. 2570

Reflectors are porcelain enamelled steel, green outside, white inside. Threaded neck of reflector engages with pendent or outlet box canopy. Open type mogul socket for ventilating lamp base. Unit is vented by means of five spacer assemblies which set up a clearance between reflector and neck.

Low Bay Type

This fixture provides a wide distribution of light for general illumination. An opal glass diffusing band suspended around the lower portion of the lamp reduces glare at normal viewing angles.

High Bay Type

This fixture gives a concentrated distribution of light. By directing the light downward to the work area there is less waste of light on ceilings and side walls under high mounting conditions.

Cat. No.	Price Each	Type	Dimensions (Inches)		Std Pkg	
			Dia	Ht	Qty	Wt

LOW BAY TYPE

2556	\$12.00	Pendent	22	15½	4	58
2556-OB	12.00	Outlet Box	22	15¼	4	58

HIGH BAY TYPE

2570	\$12.00	Pendent	18	19	4	45
2570-OB	12.00	Outlet Box	18	18¾	4	45

WHEELER GLASSTEEL DIFFUSERS

With Duratach Canopy



Wheeler Glassteel Diffusers provide a finely diffused light that is particularly desirable in factories and workrooms where fine operations require minimized shadows. They are efficient and pleasing in appearance.

Furnished complete, ready for wiring, white porcelain enamel finish inside and outside. Supplied with Duratach canopy only. Canopy finished in natural aluminum.

Cat. No.	Price Each	Lamp Watts	Dimensions (Inches)		Socket	Std Pkg	
			Dia	Ht		Qty	Wt

PENDENT CANOPY—OPAL GLOBE

1588	\$13.80	150-200	18	12	Med	4	45
1589	18.66	300-500	20	13⅞	Mog	4	60

OUTLET BOX CANOPY—OPAL GLOBE

1591	\$13.80	150-200	18	11⅞	Med	4	50
1592	18.66	300-500	20	13⅞	Mog	4	64

GLOBES ONLY—FOR REPLACEMENT

Cat. No.	Price Each	Description	Std Pkg	
			Qty	Wt
1004	\$3.18	Opal for No. 1588 and 1591...	4	10
1004-B	3.90	Daylight for No. 1588 and 1591	4	10
1008	4.98	Opal for No. 1589 and 1592...	4	15
1008-B	6.00	Daylight for No. 1589 and 1592	4	15

WHEELER ALZAK ALUMINUM REFLECTORS



Concentrating Type Reflector



Distributing Type Reflector

Wheeler Alzak aluminum deep bowl reflectors consist of a cast canopy, socket, and aluminum reflector with diffused Alzak aluminum reflecting surface. The Alzak finish provides effective light control and maintains its original efficiency under normal operating conditions.

These reflectors are supplied with Duratach cast canopies in pendent or outlet box types. The Duratach canopy permits unit removal of lamp and reflector for cleaning and re-lamping.

Reflectors are finished natural aluminum outside. Canopies finished in natural aluminum.

Pendent canopies tapped $\frac{1}{2}$ " standard; $\frac{3}{4}$ " when specified at no extra charge. Outlet box canopies are for 4" outlet boxes.

Concentrating Type

Concentrating type Alzak aluminum reflectors are recommended for locations where mounting heights are 30 feet and over, and all available light must be concentrated in a comparatively small area directly below the unit. Suitable for lighting high narrow bays in foundries, craneways, steel mills, airplane hangars, locomotive shops and similar locations.

Distributing Type

Distributing type Alzak aluminum reflectors are designed to provide a general distribution of light over a broad area. Light distribution is uniform and more intense than could be obtained with porcelain enamelled reflectors. These units are suitable for locations where mounting heights range from 15 to 25 feet.

Cat. No.	Price Each	Lamp Watts	Type	Dimensions (In)		Std Pkg	
				Dia	Hgt	Qty	Wt

CONCENTRATING TYPE REFLECTOR

4144	\$17.94	300-500	Pendent	16	16 $\frac{1}{4}$	4	29
4144-OB	17.94	300-500	Outlet Box	16	15 $\frac{3}{4}$	4	29
4148	21.36	750-1500	Pendent	18	19 $\frac{3}{8}$	4	33
4148-OB	21.36	750-1500	Outlet Box	18	18 $\frac{7}{8}$	4	33

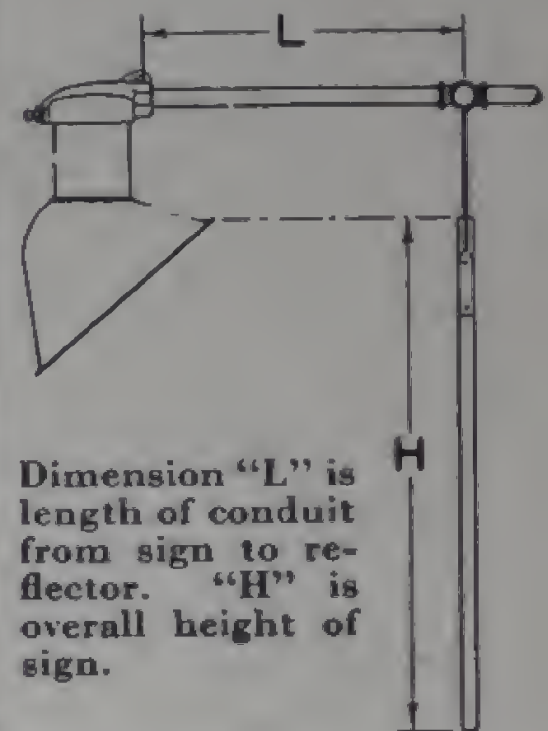
DISTRIBUTING TYPE REFLECTOR

4168	\$15.18	300-500	Pendent	14	14 $\frac{1}{2}$	4	26
4168-OB	15.18	300-500	Outlet Box	14	14	4	26
4172	21.36	750-1500	Pendent	18	18 $\frac{5}{8}$	4	32
4172-OB	21.36	750-1500	Outlet Box	18	18 $\frac{1}{8}$	4	32

WHEELER SIGN REFLECTORS



"H" Hgt. of Sign	"L" Dis- tance from Sign	Lamp Size in Watts		
		Locations		
		Dark	Av.	Bright
18	9	60	60	75
22	11	60	75	100
24	12	60	75	100
28	14	60	75	100
30	45	75	100	150
34	17	75	100	150
36	18	75	100	150
42	21	75	100	150
48	24	75	100	150
54	27	100	150	...
60	30	100	150	...



MOUNTING DATA

The distance between reflectors on rectangular signs requiring the use of more than one unit per side should not be more than twice dimension "L"

These fixtures consist of a steel reflector, porcelain enamelled green outside, white inside; a separable cast canopy finished in baked green enamel; and a two-piece removable ring type of socket. Two canopy styles are available: side outlet and top outlet. The top outlet canopy allows for pendent suspension. Reflector neck slips into either canopy and is held firmly in place by a clamping screw on the outside of the canopy. Reflector may be assembled to side outlet canopy in normal or in reversed position.

REFLECTORS

No. 2491-2493 are 30-degree angle reflectors. Small and inconspicuous during the day, they do not obstruct the view of the sign's message.

No. 2691-2693 are elliptical in shape and intended for small oval and round signs. The elliptical

mouth opening allows a slightly wider spread of light laterally than is obtainable from a symmetrical angle reflector of comparable size. Also, the upward cut-off of the reflector more nearly approaches a straight line, thus helping to eliminate any scalloping effect.

No. 2695-2696 rectangular reflectors are designed for small rectangular, square, or oval shaped bulletin boards.

CANOPIES

Cat. No.	Price Each	Description	Std Pkg	
			Qty	Wt
2450	\$1.60	*Side Outlet	10	10
2490	1.60	*Top Outlet	10	10

*Side outlet canopy is tapped $\frac{1}{2}$ " standard, $\frac{3}{4}$ " when specified at no increase in price. Top outlet canopy is tapped $\frac{1}{2}$ " only.

Lamp Watts	Dimensions (Inches)		REFLECTOR ONLY				REFLECTOR AND SIDE OUTLET CANOPY			REFLECTOR AND TOP OUTLET CANOPY		
	Diam	Hgt	Cat. No.	Price Each	Std Pkg		Cat. No.	Price Each	Pkg Wt	Cat. No.	Price Each	Pkg Wt
					Qty	Wt						
30° ANGLE REFLECTORS												
75-100	8 $\frac{1}{8}$	9 $\frac{1}{4}$	2491-R	\$2.00	10	30	2491-SO	\$3.60	40	2491-TO	\$3.60	40
150-200	10 $\frac{1}{4}$	11 $\frac{1}{2}$	2493-R	2.24	10	32	2493-SO	3.84	42	2493-TO	3.84	42
ELLIPTICAL REFLECTORS												
75-100	8 $\frac{3}{4}$ x 7 $\frac{1}{4}$	9 $\frac{1}{2}$	2691-R	\$2.00	10	30	2691-SO	\$3.60	40	2691-TO	\$3.60	40
150-200	11 $\frac{1}{4}$ x 9	11 $\frac{1}{4}$	2693-R	2.24	10	32	2693-SO	3.84	42	2693-TO	3.84	42
RECTANGULAR REFLECTORS												
60-100	8 x 8	10	2695-R	\$2.30	10	17	2695-SO	\$3.90	27	2695-TO	\$3.90	27
150	9 $\frac{3}{4}$ x 9 $\frac{3}{4}$	11 $\frac{3}{4}$	2696-R	2.54	10	23	2696-SO	4.14	33	2696-TO	4.14	33

WHEELER TWO-PIECE ISOLUX SIGN REFLECTORS

MEDIUM BASE



Top Outlet Canopy

With Side Outlet
Canopy

MOGUL BASE



Top Outlet Canopy

With Side Outlet
Canopy

Medium Base Reflectors

Medium base Isolux sign reflectors incorporate a separable cast canopy, finished in baked green enamel. Reflector attaches directly to canopy and is securely held in position by a clamping screw on the outside of the canopy. Reflector may be assembled to canopy either in normal or in reversed position. In reversed position, fixtures can be used for lighting alleys, paths, etc.

Reflectors are porcelain enamelled steel, green outside, white inside. Other colors are available, prices on request.

CANOPIES ONLY FOR MEDIUM BASE REFLECTORS

Cat. No.	Price Each	Description	Std Pkg	
			Qty	Wt
2450	\$1.60	*Side Outlet	10	10
2490	1.60	*Top Outlet	10	10

*Side outlet canopy is tapped $\frac{1}{2}$ " standard, $\frac{3}{4}$ " when specified at no increase in price. Top outlet canopy is tapped $\frac{1}{2}$ " only.

Mogul Base Reflectors

Mogul base Isolux sign reflectors consist of a porcelain enamelled reflector and a galvanized cast canopy furnished complete with socket.

The feature of this reflector construction is the hinged, split clamp canopy which swings open when fastening screw is loosened. A convex shaped ridge which extends around the inside of the canopy fits into a groove in the neck of the reflector, assuring a tight and positive method of clamp attachment. Reflectors may be assembled to canopy either in normal or in reversed position.

Cat. No. 2454 is finished porcelain enamelled white outside and inside as standard; Cat. No. 2458 is green outside. Other colors are available, prices on request.

Two canopy styles are available: side outlet and top outlet. Both are tapped 1". Side outlet canopy leads straight into conduit, no bends or elbows are necessary.

Complete information on wire guards is given on page 106.

Lamp Watts	Dimensions (Inches)		Finish	REFLECTOR ONLY				REFLECTOR AND SIDE OUTLET CANOPY				REFLECTOR AND TOP OUTLET CANOPY			
	Hgt	Mouth Opening		Cat. No.	Price Each	Std Pkg		Cat. No.	Price Each	Std Pkg		Cat. No.	Price Each	Std Pkg	
						Qty	Wt			Qty	Wt			Qty	Wt

MEDIUM BASE REFLECTORS

100	12 $\frac{1}{8}$	11 $\frac{1}{2}$ x 8 $\frac{3}{8}$	Green	2451-R	\$4.04	8	32	2451-SO	\$5.64	8	40	2451-TO	\$5.64	8	40
150	13	11 $\frac{1}{2}$ x 8 $\frac{3}{8}$	Green	2452-R	4.22	8	37	2452-SO	5.82	8	45	2452-TO	5.82	8	45
200	13 $\frac{3}{4}$	11 $\frac{1}{2}$ x 8 $\frac{3}{8}$	Green	2453-R	4.22	8	37	2453-SO	5.82	8	45	2453-TO	5.82	8	45

MOGUL BASE REFLECTORS

300-500	19	13 $\frac{3}{4}$ x 11 $\frac{1}{8}$	White	.....	.....	.....	.....	2454-SO	\$12.00	4	30	2454-TO	\$12.00	4	30
750-1500	20 $\frac{5}{8}$	14 $\frac{5}{8}$ x 12 $\frac{5}{8}$	Green	.....	.....	.....	.....	2458-SO	13.38	4	30	2458-TO	13.38	4	30

WHEELER ONE-PIECE ISOLUX SIGN REFLECTORS



One-piece Isolux Sign Reflectors are highly efficient units recommended for side lighting in locations where overhead lighting cannot satisfactorily be employed. These include factories, yards, platforms, skating rinks, bowling alleys, etc.

Fixtures consist of a porcelain enamelled reflector, a rugged

porcelain socket having large contact screws for easy wiring, and a yoke and nut tapped $\frac{1}{2}$ " standard; $\frac{3}{4}$ " when specified, at no advance in price.

Medium Base Isolux Reflectors are supplied with standard two-piece medium base sockets. Mogul Base Isolux Reflectors are supplied with one-piece side wired mogul base sockets.

Reflectors are finished porcelain enamelled green outside, white inside, except Cat. No. 2377 (300-500 watts), which is finished white outside. Other colors are available, prices on request. Supplied for pendent suspension only. Tapped $\frac{1}{2}$ " standard; $\frac{3}{4}$ " when specified, at no increase in price.

Wire Guards: Complete information on wire guards is given on page 106.

Cat. No.	Price Each	Lamp Watts	Socket	Finish	Dimensions (In)		Std Pkg	
					Height	Mouth Opening	Qty	Wt
2373	\$5.64	100	Med	Green	12 $\frac{7}{8}$	11 $\frac{1}{2}$ x 8 $\frac{3}{8}$	8	30
2374	5.82	150	Med	Green	12 $\frac{3}{4}$	11 $\frac{1}{2}$ x 8 $\frac{3}{8}$	8	35
2375	5.82	200	Med	Green	14 $\frac{1}{2}$	11 $\frac{1}{2}$ x 8 $\frac{3}{8}$	8	35
2377	12.00	300-500	Mog	White	18	13 $\frac{3}{4}$ x 11 $\frac{1}{8}$	4	25

WHEELER ISLAND LIGHTS AND COMBINATION UNITS



For lighting gasoline pump islands, taxi cab stands, shipping platforms, railroad platforms, safety islands, docks, yards, driveways and courts, service stations.

ISLAND LIGHT

Reflector is made of steel, porcelain enamelled green or red outside, white inside. The cast hub slips over 2-inch pipe and is held securely in place by means of two large set screws. Three aluminum rods support the reflector. Lamp size 300-500 watts.

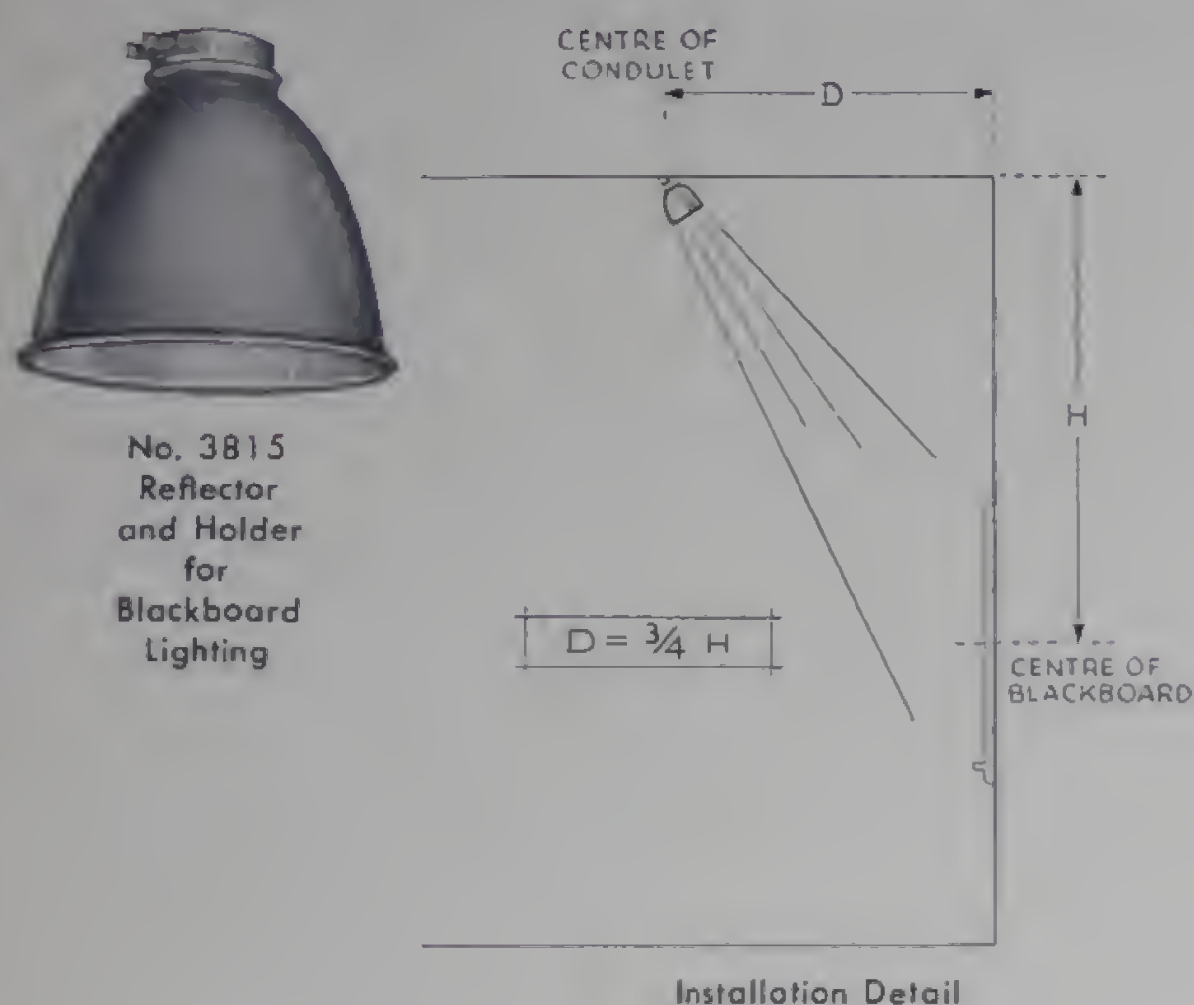
COMBINATION UNIT

Consists of Island Light and 300-500 watt enclosed floodlight mounted on top, thus making possible simultaneous floodlighting of buildings and lighting of pump islands. Floodlight has highly efficient and durable reflector of Alzak aluminum. Exterior is finished in natural aluminum. If desired, floodlight can readily be added to Island Light at any future date.

Cat. No.	Price Each	Finish *	Lamp Watts	Dimensions (Inches)		Std Pkg	
				Dia	Hgt	Qty	Wt
ISLAND LIGHT							
2589-G	\$14.50	Green	300-500	20 $\frac{1}{4}$	17 $\frac{3}{8}$	1	10
2589-R	14.50	Red	300-500	20 $\frac{1}{4}$	17 $\frac{3}{8}$	1	10
COMBINATION UNIT							
2599-G	\$44.20	Green	300-500	20 $\frac{1}{4}$	34	1	22
2599-R	44.20	Red	300-500	20 $\frac{1}{4}$	34	1	22

*Other colors are available—prices on request.

WHEELER REFLECTOR FOR BLACKBOARD LIGHTING



When used with the PAR-38 projector floodlamp, this reflector provides an efficient and economical way of lighting classroom blackboards. A suggest-

ed method of installation is the use of type JA-1 condulets, having a fixed angle of 27 degrees, and No. CC2270 receptacles. Condulets should be spaced 4 feet apart, and mounted on the ceiling so that the distance from centre of conduit to wall is $\frac{3}{4}$ the distance from ceiling to middle of blackboard.

This reflector also may be used for local lighting over work-benches, machines and desks. It will accommodate 40 or 60 watt inside-frosted lamps.

Finished inside and out in alumilite, which will not tarnish or deteriorate in normal service. Supplied with a Snap-Tite holder for porcelain sockets. The holder attaches very easily and quickly, snapping under the heel of the reflector and fastening reflector and socket securely together.

Cat. No.	List Price	Dimensions (In)		Std Pkg	
		Hgt	Diom	Qty	Wt
3815	\$1 40	5 1/4	5 1/2	10	10

WHEELER DUST-TIGHT GLASS COVERS



Wheeler dust-tight covers provide an inexpensive yet effective method of protecting the lamps, sockets and inner reflecting surfaces of reflectors. In industrial locations where there is an excessive amount of dirt present, or in outside locations where it is essential to protect the lamp from the weather, maintenance costs can be reduced to a minimum by using Wheeler dust-tight covers.

These covers can be attached quickly and easily to RLM dome, deep bowl, angle, or aluminum reflectors by slipping the retaining ring over the

head of the reflector, and closing the positive spring clamp. An asbestos gasket seals the assembly. The rolled channel retaining ring is made of aluminum. Convex glass plates are supplied in clear glass as standard; sand-blast etched glass is available.

Cat. No.	Price Each	Description	Std Pkg	
			Qty	Wt
COMPLETE DUST-TIGHT COVERS WITH CLEAR GLASS*				
2260	\$ 4.68	For 10" Diameter Reflectors.	5	9
2262	5.04	For 12" Diameter Reflectors.	5	13
2266	7.56	For 16" Diameter Reflectors.	5	23
2268	8.16	For 18" Diameter Reflectors.	5	27
2269	10.32	For 20" Diameter Reflectors.	5	31
CLEAR GLASS PLATES ONLY*				
2250	\$ 1.92	For 10" Diameter Covers	5	8
2252	2.10	For 12" Diameter Covers	5	12
2256	3.30	For 16" Diameter Covers	5	20
2258	3.84	For 18" Diameter Covers	5	24
2259	4.98	For 20" Diameter Covers	5	29
GASKETS ONLY				
2270	\$ 0.84	For 10" Diameter Covers	5	2
2272	.96	For 12" Diameter Covers	5	2
2276	1.20	For 16" Diameter Covers	5	2
2278	1.44	For 18" Diameter Covers	5	2
2280	1.74	For 20" Diameter Covers	5	2

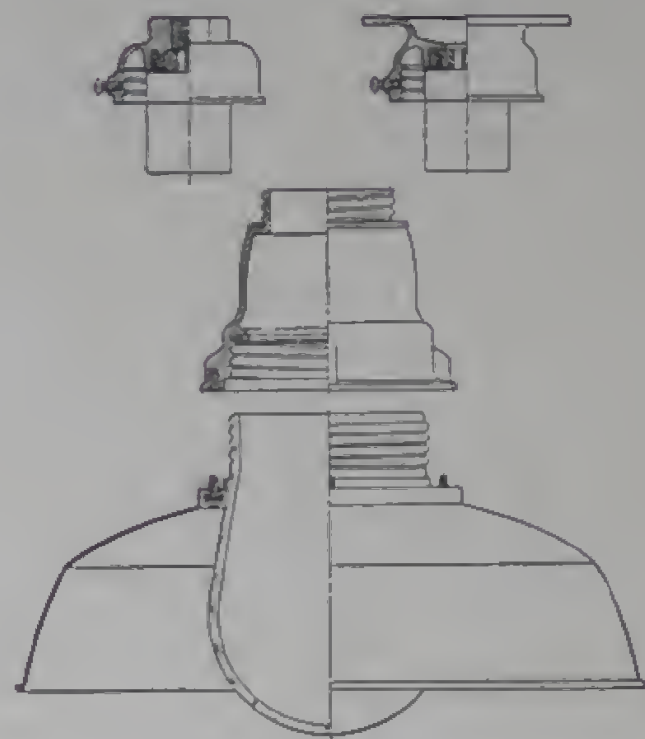
*Sand-blast etched glass at \$1.43 list extra.

WHEELER VAPOUR-PROOF FIXTURES

PENDENT TYPES



CEILING TYPES



Application

These fixtures are recommended for use in locations where moisture or non-combustible dusts or vapours are present.

Construction

The two piece cast aluminum canopy is threaded to take the heavy glass globe. Both pendent and ceiling type canopy tops are interchangeable on all canopy bodies. A gasket between the globe and canopy body and one between the canopy body and canopy top ensure a tight unit. A stuffing gland seals lead-in wires. Reflectors are interchangeable throughout the medium base and mogul base range. Globes are available in clear, opal or heat-resisting clear glass.

Finish

The reflector is finished in acid resisting porcelain enamel, green outside, white inside. The canopy is finished natural aluminum.

Installation

By removing the top from the canopy body, the socket is fully exposed so that wiring to socket terminals is easily done.

Wire Guards

Guards are available for vapour-proof fixtures without reflector. See page 106.

Pendent Canopies

Supplied with canopy top tapped for $\frac{1}{2}$ " conduit. When specified on order, top will be tapped for $\frac{3}{4}$ " conduit without additional charge.

Ceiling Canopies

Supplied with canopy top drilled for standard 4" outlet boxes. When specified, top will be drilled with four holes for attaching to a cast heavy duty water-tight junction box, without additional charge.

CLEAR GLOBE		OPAL GLOBE		Lamp Watts	Dimensions (In)		Socket	Std Pkg	
Cat. No.	Price Each	Cat. No.	Price Each		Diam	Height		Qty	Wt
PENDENT FIXTURE—STANDARD DOME									
2100	\$ 8.28	2100-OG	\$11.52	75-100	12 $\frac{1}{8}$	11 $\frac{1}{4}$	Medium	10	80
2102	11.40	2102-OG	14.64	200	16	11 $\frac{1}{4}$	Medium	5	46
2103	14.82	2103-OG	18.06	300-500	18	13 $\frac{1}{2}$	Mogul	5	65
PENDENT FIXTURE—30° ANGLE									
2110	\$ 9.00	2110-OG	\$12.24	75-100	10 $\frac{1}{4}$	12	Medium	10	73
2111	10.02	2111-OG	13.26	150-200	12 $\frac{1}{8}$	14	Medium	5	39
2112	13.80	2112-OG	17.04	300-500	15 $\frac{3}{8}$	16 $\frac{1}{2}$	Mogul	5	63

WHEELER VAPOUR-PROOF FIXTURES

CLEAR GLOBE		OPAL GLOBE		Lamp Watts	Dimensions (In)		Socket	Std Pkg	
Cat. No.	Price Each	Cat. No.	Price Each		Diam	Height		Qty	Wt
PENDENT FIXTURE—WITHOUT REFLECTOR									
2120	\$5.16	2120-OG	\$ 8.40	60-100	5 ⁵ / ₈	10 ¹ / ₄	Medium	10	60
2121	5.82	2121-OG	9.06	150-200	5 ⁵ / ₈	11 ¹ / ₄	Medium	10	65
2122	7.74	2122-OG	10.98	300-500	8 ³ / ₈	13 ¹ / ₂	Mogul	5	50
CEILING FIXTURE—STANDARD DOME									
2130	\$ 9.12	2130-OG	\$12.36	75-100	12 ¹ / ₈	11 ¹ / ₄	Medium	10	81
2132	12.24	2132-OG	15.48	200	16	11 ¹ / ₄	Medium	5	46
2133	15.66	2133-OG	18.90	300-500	18	13 ¹ / ₂	Mogul	5	66
CEILING FIXTURE—30° ANGLE									
2140	\$ 9.84	2140-OG	\$13.08	75-100	10 ¹ / ₄	12	Medium	10	74
2141	10.86	2141-OG	14.10	150-200	12 ¹ / ₈	14	Medium	5	40
2142	14.64	2142-OG	17.88	300-500	15 ³ / ₈	16 ¹ / ₂	Mogul	5	64
CEILING FIXTURE—WITHOUT REFLECTOR									
2150	\$6.00	2150-OG	\$ 9.24	60-100	5 ⁵ / ₈	10 ¹ / ₄	Medium	10	60
2151	6.66	2151-OG	9.90	150-200	5 ⁵ / ₈	11 ¹ / ₄	Medium	10	65
2152	8.58	2152-OG	11.82	300-500	8 ³ / ₈	13 ¹ / ₂	Mogul	5	50

REPLACEMENT PARTS

Cat. No.	Price Each	Description	Lamp Watts	Dimensions (Inches)		Std Pkg	
				Diam	Height	Qty	Wt
GLOBES							
1311	\$1.44	Clear	60-200	5 $\frac{1}{4}$	4 $\frac{1}{4}$	10	20
1311-HR	4.68	Clear, Heat Resisting	60-200	5 $\frac{1}{4}$	4 $\frac{1}{4}$	10	20
1311-OG	4.68	Opal	60-200	5 $\frac{1}{4}$	4 $\frac{1}{4}$	10	20
1312	3.48	Clear	300-500	8 $\frac{3}{8}$	5 $\frac{5}{8}$	5	20
1312-HR	6.72	Clear, Heat Resisting	300-500	8 $\frac{3}{8}$	5 $\frac{5}{8}$	5	20
1312-OG	6.72	Opal	300-500	8 $\frac{3}{8}$	5 $\frac{5}{8}$	5	20
REFLECTORS ONLY							
2159	\$2.40	Standard Dome	75-100	12 $\frac{1}{8}$	3 $\frac{3}{16}$	10	19
2161	4.50	Standard Dome	200	16	5 $\frac{1}{2}$	10	32
2162	4.56	Standard Dome	300-500	18	5 $\frac{5}{16}$	5	21
2166	3.12	Angle	75-100	10 $\frac{1}{4}$	6 $\frac{3}{4}$	10	20
2167	3.12	Angle	150-200	12 $\frac{1}{8}$	8 $\frac{11}{16}$	10	27
2168	3.54	Angle	300-500	15 $\frac{3}{8}$	10 $\frac{3}{8}$	5	26
CAST CANOPIES ONLY WITH SOCKETS							
2153	\$4.44	Pendent	60-100	....	4 $\frac{1}{2}$	10	48
2154	5.46	Pendent	150-200	....	5 $\frac{1}{2}$	10	48
2155	6.78	Pendent	300-500	....	6 $\frac{1}{4}$	5	36
2156	5.28	Ceiling	60-100	....	4 $\frac{1}{2}$	10	49
2157	6.30	Ceiling	150-200	....	5 $\frac{1}{2}$	10	49
2158	7.62	Ceiling	300-500	....	6 $\frac{1}{4}$	5	38

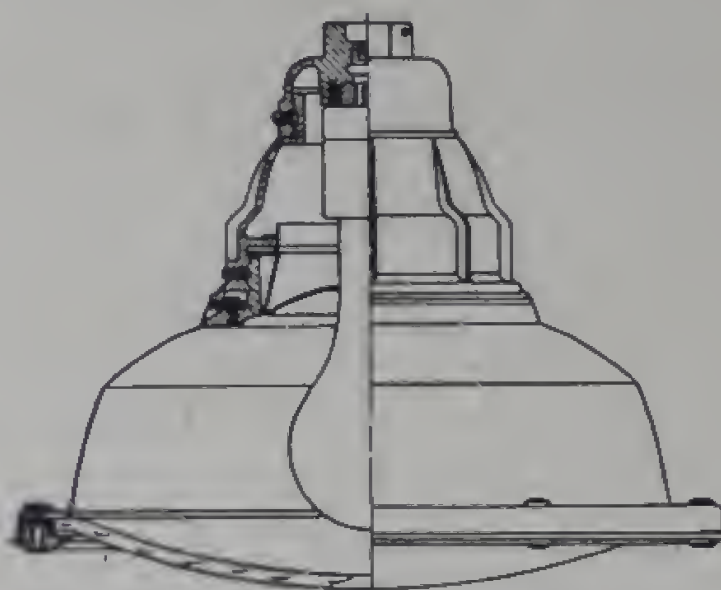
WHEELER "VAPOLUX" FIXTURES

Dust-tight and Vapour-proof

Listed by Underwriters' Laboratories for Class II, Group G Hazardous Locations



Standard Dome



Sectional View of Vapolux Fixture



30° Angle

Wheeler "Vapolux" fixtures are recommended for Class II Group G hazardous locations where combustible dust atmospheres exist, such as in flour mills, feed mills, grain elevators, starch mills, sugar, cocoa and coal pulverizing plants, and establishments or industries involving similar hazardous processes or conditions.

Construction

The porcelain enamelled steel reflector is entirely enclosed and protected by a rugged, clear, heat resisting cover glass permanently sealed in place. This construction prevents the accumulation of smoke, dust, moisture or dirt on the reflecting surface. Thus, to restore the unit to initial efficiency, it is simply a matter of cleaning the outside surface of the cover glass.

The cast aluminum canopy is of two-piece construction, the joint between the canopy top and canopy body being made by closely fitting machined threads. This avoids the necessity of any gasket between these two parts which are infrequently separated. An aluminum baffle plate is secured in the lower end of the canopy body to provide additional reflecting surface.

Canopies are tapped $\frac{1}{2}$ " standard; $\frac{3}{4}$ " when specified at no increase in price. Available for pendent suspension only.

Finish

The reflector is finished in acid resisting porcelain enamel, green outside, white inside. Canopy is finished natural aluminum.

Installation

Wiring is particularly simple due to the easily accessible porcelain socket mounted in the removable canopy top. Set screws are provided at all threaded joints as well as in the conduit hub, for positive protection against loosening under constant vibration.

Relamping

Relamping is accomplished by unscrewing the reflector and sealed-in cover glass as a unit from the canopy and lowering it down over the lamp. A mechanically attached gasket is provided at this threaded joint to ensure a tight seal when the reflector is replaced.

COMPLETE UNIT		Lamp Watts	Dimensions (Ins)		Socket	Std Pkg		REPLACEMENT GLASS COVER ONLY	
Cat. No.	Price Each		Diam.	Height		Qty	Wt	Cat. No.	Price Each
STANDARD DOME									
2638	\$38.10	200	17¼	12½	Med	2	35	2616	\$ 6.90
2639	48.60	300-500	19½	15	Mog	1	22	2618	11.76
30° ANGLE									
2644	\$40.68	150-200	17¼	16½	Med	2	45	2616	\$ 6.90
2645	50.94	300-500	19½	19	Mog	1	27	2618	11.76

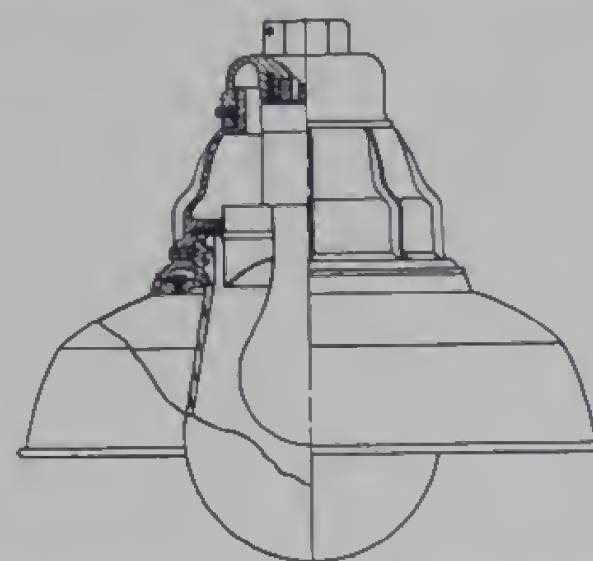
WHEELER "CLASS II-G" GLOBE TYPE FIXTURES

Dust-tight and Vapour-proof

Listed by Underwriters' Laboratories for Class II, Group G Hazardous Locations



Standard Dome



Sectional View of "Class II-G" Globe Type Fixture

Wheeler "Class II-G" Globe type fixtures are recommended for Class II Group G hazardous locations where combustible dust atmospheres exist, such as flour mills, feed mills, grain elevators, starch mills, sugar, cocoa and coal pulverizing plants, and establishments or industries involving similar hazardous processes or conditions.

Construction

The lamp is totally enclosed in a dust-exclusion chamber formed at its upper end by the cast canopy parts and at the lower end by the threaded glass globe. The seal between the globe and canopy body is entirely independent of the threaded reflector neck, so that effective protection is afforded even though the reflector might not be thoroughly seated in the canopy body.

The cast aluminum canopy is of two-piece construction, the joint between the canopy top and canopy body being made by closely fitting machined threads. This avoids the necessity of any gasket between these two parts which are infrequently separated. An aluminum baffle plate is secured in the lower end of the canopy body to provide additional reflecting surface.

Canopies are tapped $\frac{1}{2}$ " standard; $\frac{3}{4}$ " when specified at no increase in price. Available for pendent suspension only.

Finish

The steel reflector is finished in acid resisting porcelain enamel, green outside, white inside. Canopy is finished natural aluminum.

Installation

Wiring is particularly simple due to the easily accessible porcelain socket mounted in the removable canopy top. Set screws are provided at all threaded joints as well as in the conduit hub, for positive protection against loosening under constant vibration.

Relamping

Relamping is accomplished by merely removing threaded glass globe, or if reflector cleaning is necessary at the same time—reflector and globe may be taken down as a unit over the lamp. If the latter procedure is followed, the globe should be left loose in the reflector neck, when relamping, so that it can be driven home against its seating gasket after the reflector has been seated to the canopy body. The globe seating gasket is mechanically attached in the canopy body, so there is no chance of reassembling the fixture with the gasket being omitted.

COMPLETE UNIT		Lamp Watts	Dimensions (Inches)		Std Pkg		REPLACEMENT GLOBE ONLY	
Cat. No.	Price Each		Diam	Hgt	Qty	Wt	Cat. No.	Price Each
STANDARD DOME								
1455	\$15.90	75-100	12	11 1/4	10	70	1311	\$1.44
*1455-HR	19.14	75-100	12	11 1/4	10	70	1311-HR	4.68
1456	22.80	150-200	18	11 5/8	10	130	1312	3.48
*1456-HR	26.04	150-200	18	11 5/8	10	130	1312-HR	6.72

*Suffix HR denotes Heat-Resisting Globe.

WHEELER EXPLOSION-PROOF FIXTURES

Listed by Underwriters' Laboratories for Class 1, Group D Hazardous Locations



Standard Dome



Shallow Dome



Deep Bowl



30° Angle



Without Reflector



Ceiling Type



Wall Bracket Fixture



Side Wall Fixture



Gasoline Pump Unit

Wheeler explosion-proof fixtures are designed for Class I Group D hazardous locations—atmospheres containing vapours of gasoline, petroleum, naphtha, alcohols, acetone, lacquer solvents and natural gas.

Construction

Sturdily built with strong cast walls and furnished with a special heat resisting lens of sufficient thickness to withstand the shattering pressures of internal explosion, they prevent sparks or hot gases from escaping and igniting vaporous or gaseous atmosphere.

Finish

The steel reflector is finished in porcelain enamel, green outside, white inside. Cadmium finish on canopy; aluminum on guard, hood and screw cover.

Installation

Wiring the fixture is easily and quickly accomplished. Lamp and wiring chambers are securely separated by a wall of sealing cement so that should an explosion occur in one chamber it cannot harm the other.

Relamping

Relamping is easily done by loosening the two thumb screws on either side of the fixture and unscrewing the entire hood unit, consisting of hood, reflector, lens and guard, from the dome.

PENDENT FIXTURES

Tapped $\frac{3}{4}$ " standard.*

CEILING FIXTURES

To order Ceiling type fixtures simply add the suffix CT to the catalogue number of the corresponding Pendant type listing. The addition for ceiling type fixtures is \$6.34. Explosion-proof

outlet box has four threaded hubs for $\frac{3}{4}$ -inch conduit*, three of which have close-up plugs.

WALL BRACKET FIXTURE

An explosion-proof fixture with a wall bracket outlet box type of canopy construction which permits fixture to be suspended at a greater distance from the wall than is possible with the "Side Wall" style of fixture.

The explosion-proof outlet box on the bracket has four threaded holes for $\frac{3}{4}$ " conduit*, three of which have close-up plugs.

SIDE WALL FIXTURE

An explosion-proof fixture with canopy constructed for direct attachment to sidewalls.

Cadmium finish on canopy. Aluminum on guard, hood, and screw cover. Tapped $\frac{3}{4}$ " standard*.

GASOLINE PUMP UNIT

A compact and reliable explosion-proof lighting fixture for illumination of gasoline pumps and pump dials.

Furnished with a small oscillating switch which is wired in the controlling circuit. A screw cover in the back of the fixture permits wiring connections to be quickly and easily made. Lamp and wiring chambers are securely separated by a wall of sealing cement so that should an explosion occur in one chamber, it cannot harm the other.

Fixture may be used for direct or indirect lighting and may be mounted in any position. Inasmuch as fixture is usually installed inside pumps, no guard is furnished. To relamp, simply remove entire globe unit.

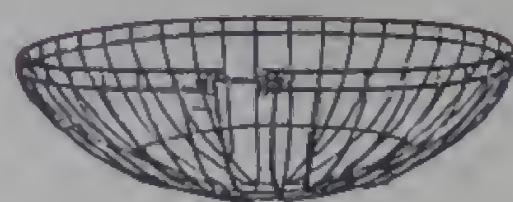
Cadmium finish on canopy. Aluminum on threaded ring and screw cover. Tapped $\frac{1}{2}$ " standard.

*Available tapped for $\frac{1}{2}$ " conduit at a reduction of \$0.42.

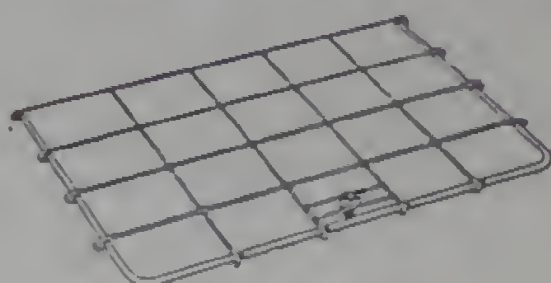
WHEELER EXPLOSION-PROOF FIXTURES

FIXTURE WITH GUARD			FIXTURE LESS GUARD			Lamp Watts	Dimensions (In)			Std Pkg
Cat. No.	Price Each	Wt Lb	Cat. No.	Price Each	Wt Lb		Diam	Height With Guard	Height Less Guard	
PENDENT FIXTURE WITH STANDARD DOME REFLECTOR										
4025	\$31.37	17	4030	\$29.96	16	100	12	13	13	1
4026	32.08	18	4031	30.67	17	150	14	13	13	1
4027	44.77	29	4032	42.65	28	200	16	15½	15½	1
PENDENT FIXTURE WITH SHALLOW DOME REFLECTOR										
4055	\$31.02	17	4060	\$29.61	16	100	12	13	13	1
4056	31.73	18	4061	30.32	17	150	14	13	13	1
4057	44.42	27	4062	42.30	26	200	16	15½	15½	1
PENDENT FIXTURE WITH DEEP BOWL REFLECTOR										
4035	\$31.73	17	4040	\$30.32	16	100	10	13	13	1
4036	32.43	18	4041	31.02	17	150	12	13½	13½	1
4037	45.12	26	4042	43.01	25	200	14	15¾	15¾	1
PENDENT FIXTURE WITH 30° ANGLE REFLECTOR										
4045	\$31.73	17	4050	\$30.32	16	100	10	14½	14½	1
4046	32.43	18	4051	31.02	17	150	12	16¼	16¼	1
4047	45.83	27	4052	43.71	26	200	16	20	20	1
PENDENT FIXTURE WITHOUT REFLECTOR										
4015	\$27.50	15	4020	\$26.09	14	100	7⅞	13	12¼	1
4016	27.50	15	4021	26.09	14	150	7⅞	13	12¼	1
4017	39.48	23	4022	37.37	22	200	8½	15½	14½	1
WALL BRACKET FIXTURES										
4006	\$36.66	20	4009	\$35.25	19	100	10¾	13⅞	13¼	1
4007	36.66	20	4010	35.25	19	150	10¾	13⅞	13¼	1
4008	48.65	28	4011	46.53	27	200	12⅞	15¾	15	1
SIDE WALL FIXTURES										
4012	\$35.25	15	4018	\$33.84	14	100	7½	12½	11⅞	1
4013	35.25	15	4019	33.84	14	150	7½	12½	11⅞	1
GASOLINE PUMP UNIT										
Cat. No.	Price Each	Description	Lamp Watts	Dimensions (In)		Std Pkg				
				Diam	Height	Qty	Wt			
4028	\$14.10	Complete Unit	25-40	6¾	10½	1	10			
4029	5.64	Globe Only	.....	...	....	1	3			

WHEELER WIRE GUARDS



Guard for Round
Reflectors



Guard for Isolux
Reflectors



No. 170 Guard

Wheeler wire guards are ruggedly constructed of heavy wire which is tinned after spot welding. A unique clamping screw arrangement permits rapid removal of these guards for cleaning and relamping reflectors.

Throughout most of the catalogue, reflector diameters have been indicated in the nearest even inch dimension. However, in some instances exact overall bead diameters have been given. Guards have been made to clamp properly around reflector bead diameter as shown in the "Actual" column.

Cat. No.	Price Each	Lamp Watts	Nominal Diam (In)	Actual Diam (In)	Depth (In)	Std Pkg	
						Qty	Wt
GUARDS FOR ROUND REFLECTORS							
4425	\$2.40	.....	8	8 $\frac{1}{4}$	2	10	3
4427	2.88	.....	10	10 $\frac{1}{4}$	2 $\frac{1}{2}$	10	3
4429	3.60	.....	12	12 $\frac{1}{8}$	3 $\frac{1}{4}$	10	3
4431	4.32	.....	14	13 $\frac{3}{4}$	5 $\frac{1}{2}$	10	3
4434	5.04	.....	16	16 $\frac{1}{16}$	4 $\frac{3}{4}$	10	3
4435	6.00	.....	18	18	3 $\frac{3}{4}$	10	3
4436	7.20	.....	20	20 $\frac{7}{16}$	3 $\frac{1}{2}$	10	3
GUARDS WITH CLIPS, FOR ISOLUX REFLECTORS							
172	\$1.90	100-200	.....	.....	.....	8	5
160	2.90	300-500	.....	.....	.....	4	4
GUARD FOR VAPOUR-PROOF UNITS WITHOUT REFLECTORS							
170	\$3.50	60-100 & 150-200	.....	.....	.....	10	11

WHEELER GLOBE HOLDER AND SHADE

GLOBE HOLDER



Weatherproof

Made of steel, porcelain enamelled white inside and green outside. Supplied complete with medium base socket, supporting yoke and locknut. Yoke is tapped $\frac{1}{2}$ -inch standard; $\frac{3}{4}$ -inch when specified, at no extra charge.

Cat. No.	Price Each	Fitter	Std Pkg	
			Qty	Wt
231	\$3.75	6"	10	30

SHADE



Painted Half Shade

For 40, 50 and 60-watt lamps. Length $5\frac{1}{8}$ inches; depth $2\frac{1}{8}$ inches. With collar to fit standard holders. Baked enamel inside and out. Green outside and white inside.

Cat. No.	Price Each	Std Pkg	
		Qty	Wt
375	\$0.60	25	10

WHEELER SOCKETS

MEDIUM BASE SOCKET



Used on Durex medium base reflectors. A removable ring type of socket with supporting screw holes on $1\frac{15}{32}$ " centres. Porcelain socket shell can be screwed off to expose contact screws for ready wiring.

Cat. No.	Price Each	Description	Std Pkg	
			Qty	Wt
222	\$0.84	Socket only	10	8

STANDARD TWO PIECE SOCKETS



Used on Durex mogul base reflectors, medium base One-piece Solid-neck reflectors, medium base One-piece Isolux reflectors, and mogul Vapour-proof fixtures.

A two-piece porcelain socket of rugged construction. Socket cap has slotted holes on $1\frac{15}{32}$ " centres for supporting screws. By removing socket body, terminal screws are exposed on the lower side of the cap.

Cat. No.	Price Each	Base	Description	Std Pkg	
				Qty	Wt
219	\$0.84	Med	Socket only	10	8
218	1.62	Med	Socket with yoke and nut	10	10
221	1.02	Mog	Socket only	5	5
220	2.04	Mog	Socket with yoke and nut	5	6



SIDE WIRED SOCKETS

Medium and Mogul Base

One-piece sockets which attach directly to canopy or yoke. Wired from side or back. Supporting screw holes on $1\frac{15}{32}$ " centres. Used on medium Vapour-proof, Vapolux, Isolux and Mercury Vapour fixtures.

Cat. No.	Price Each	Base	Description	Std Pkg	
				Qty	Wt
297	\$0.60	Med	Socket only	10	8
386	1.02	Mog	Socket only	5	5
387	1.92	Mog	Socket with yoke and nut	5	6

DURATACH SOCKETS

Medium and Mogul Base



The Duratach porcelain socket cap accommodates all medium and mogul base Duratach reflectors. Socket cap is attached to canopy by two screws which fit into bayonet holes in the socket cap.

The socket bodies are rigidly held in the reflector necks by means of two screws. Shock-absorbing features may be added at any time merely by insertion of a shock-absorbing element.

Cat. No.	Price Each	Description	Std Pkg	
			Qty	Wt
266	\$1.00	Medium Body	10	5
267	1.40	Mogul Body	10	8
268	.50	Cap only	10	3

MEDIUM BASE SOCKET



A removable ring type of porcelain socket. Wired from side or back. Supporting screw holes on $1\frac{15}{32}$ " centres.

Used on all Arcolux reflectors, bulletin sign reflectors, 100-200 watt portable floodlights, and No. 212 separable canopy.

Cat. No.	Price Each	Description	Std Pkg	
			Qty	Wt
295	\$0.84	Socket only	10	8
296	1.62	Socket with yoke and nut	10	10



YOKE AND LOCKNUT

For Medium and Mogul Base Sockets

Die-cast yoke and locknut furnished complete with fibre washer and two brass socket screws. Yoke is tapped $\frac{1}{2}$ " standard, $\frac{3}{4}$ " when specified, at no extra charge. Locknut threads are right-hand, permitting the complete fixture to be tightened by the locknut.

Cat. No	Price Each	Tap	Std Pkg	
			Qty	Wt
392	\$1.02	$\frac{1}{2}$	10	4
393	1.02	$\frac{3}{4}$	10	4

WHEELER FITTINGS

BALL AND SOCKET ALIGNER



For 3¼ inch
and
4 inch Outlet
Boxes

The ball and socket construction permits the cover to be attached to an outlet box that is mounted at an angle, while the fixture itself hangs plumb. The die-cast ball is fitted to accommodate ½ inch pipe. The cadmium plated cover is made of steel and is attached to outlet box by means of two screws.

Cat. No.	Price Each	Description	Std Pkg	
			Qty	Wt
264	\$0.84	Aligner only	10	8

ALIGNER WITH SHOCK ABSORBER



For 3¼ inch
and
4 inch Outlet Boxes

This aligner assures the vertical hanging of reflectors and protects the fixtures from vibration. Will correct for any variation up to 15° from the vertical. Made of cast aluminum, tapped for ½ inch pipe.

Three sizes of springs are available, to accommodate various combined weights of fixtures and conduit. Springs are interchangeable.

Cat. No.	Price Each	Combined Weight of Fixture and Conduit	Std Pkg	
			Qty	Wt
97	\$1.26	Up to 9 lb.	10	14
100	1.26	9 to 15 lb.	10	14
101	1.26	15 to 25 lb.	10	14

SHOCK ABSORBER



Suspension Fitting

Made of cast aluminum, with nozzle threaded for ½ inch pipe. Shock absorber minimizes vibration.

Cat. No.	Price Each	Std Pkg	
		Qty	Wt
241	\$0.84	10	8

SHOCK ABSORBER



Stem Fitting
For ½ inch pipe

Made of cast aluminum, with nozzle threaded for ½ inch pipe. Shock absorber minimizes vibration.

Cat. No.	Price Each	Std Pkg	
		Qty	Wt
245	\$0.70	10	5

SHOCK ABSORBING ELEMENT



For Medium and
Mogul Sockets

A thin shock-absorbing element which can be inserted between socket and canopy, or socket and yoke. This small element increases the life of the lamps in locations where fixtures are subjected to severe vibration. No. 211 is for Duratach sockets only.

Cat. No.	Price Each	Std Pkg	
		Qty	Wt
209	\$0.30	10	1½
211	.30	10	1½

WHEELER FITTINGS

SEPARABLE CANOPY



Can be used to suspend any 2 1/4 inch Shadeholder Reflector.

Canopy is complete with No. 295 socket, yoke and nut. Tapped 1/2-inch standard; 3/4-inch when specified at no extra charge.

Cat. No.	Price Each	Socket	Fitter	Std Pkg	
				Qty	Wt
212	\$2.50	Med	2 1/4"	10	15
214	3.00	Mog	3 1/4"	10	20

CAST COVER



For 4-inch Outlet Boxes

Made of cast aluminum, and is available in 1/2-inch pipe size, both male and female. Screw holes are on 3 1/2-inch centres.

Cat. No.	Price Each	Description	Std Pkg	
			Qty	Wt
236	\$0.96	Cover (female) and gasket ..	10	12
276	.72	Cover only (female)	10	10
277	.78	Cover only (male)	10	10
237	.24	Gasket only	10	2

SUSPENSION FITTING

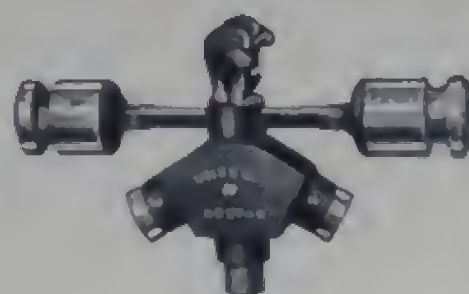


Without Shock Absorber

Suspension fitting with plain loop, tapped for 1/2 inch pipe.

Cat. No.	Price Each	Description	Std Pkg	
			Qty	Wt
315	\$1.68	Plain Loop	10	20

CABLE GRIP SUSPENSION HANGER



With Cross Arm Assembly

Available with 1/2 inch female thread, or fitted with a nipple to provide 1/2 inch male thread. Removable side plate allows for easy wiring.

Cat. No.	Price Each	Description	Std Pkg	
			Qty	Wt
271	\$2.10	1/2 inch Female	10	26
272	2.10	1/2 inch Male	10	26
273	3.48	For 3-wire susp. (similar to 272)	10	26

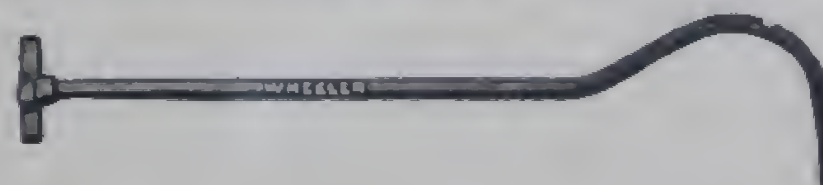
CABLE GRIP SUSPENSION HANGER



Without Cross Arm Assembly
For 1/2 inch pipe

Cat. No.	Price Each	Std Pkg	
		Qty	Wt
316	\$1.32	10	20

STANDARD IRON BRACKET

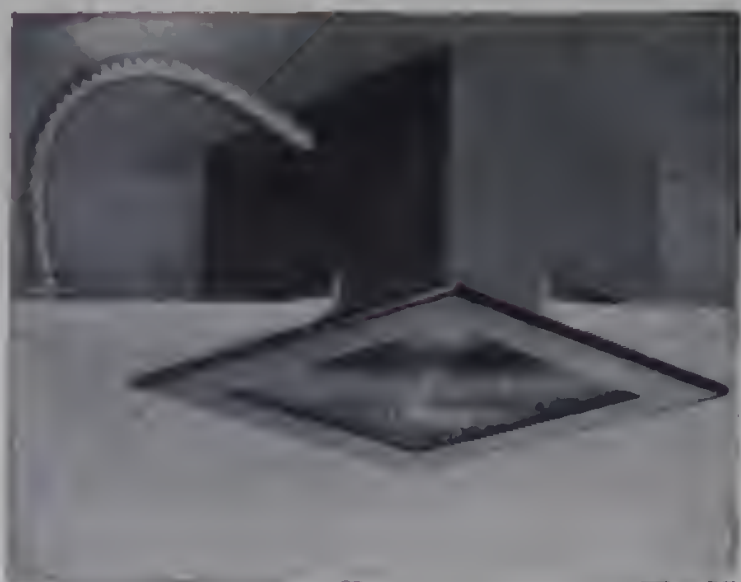


Wheeler 30 inch gooseneck bracket, 1/2-inch pipe, galvanized with flange, is useful when reflectors are to be installed from walls.

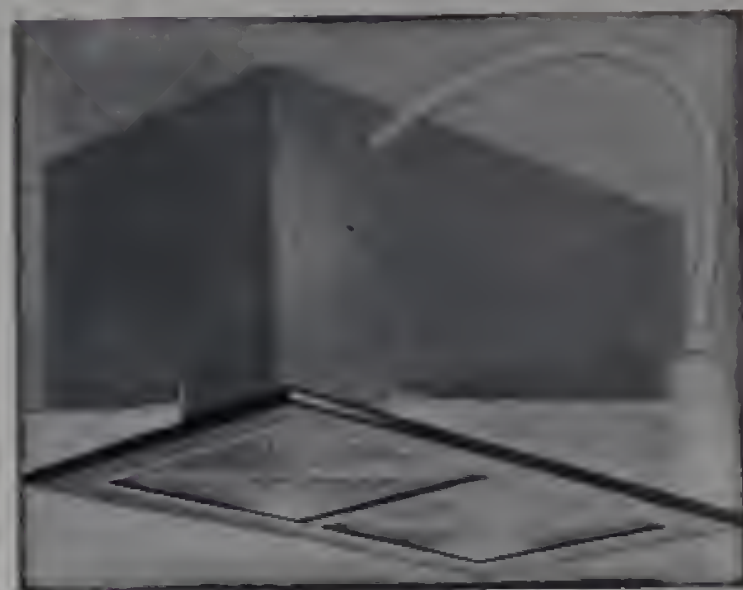
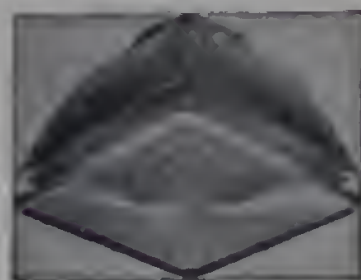
Adaptable for the lighting of shipping platforms, yards, etc.

Cat. No.	Price Each	Description	Std Pkg	
			Qty	Wt
226	\$1.32	Complete with Flange	10	40
227	.84	Bracket only.	10	30
228	.48	Flange only	10	10

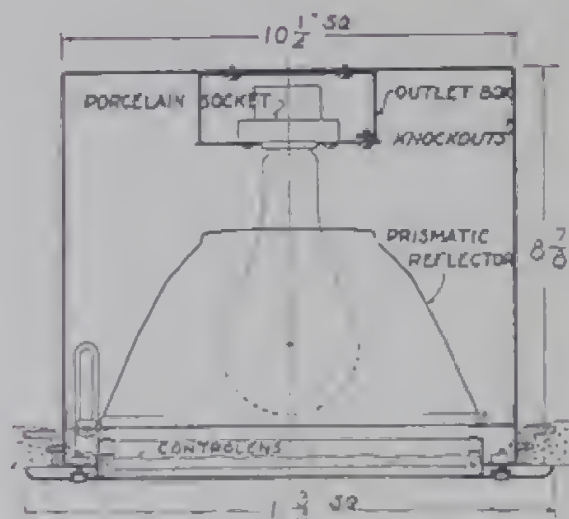
HOLOPHANE IN-BILT FLUSH UNITS



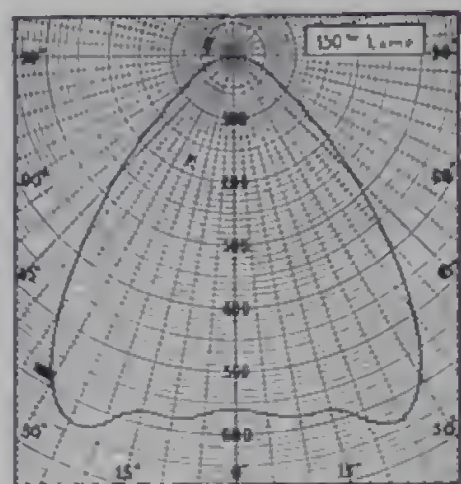
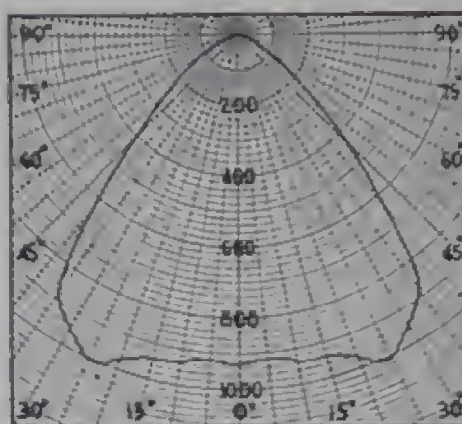
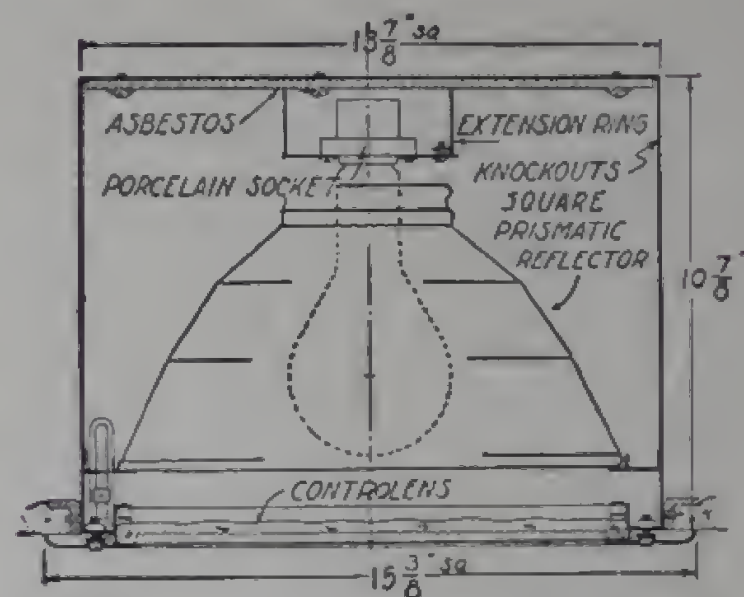
No. F-1748 or No. F-1774



No. F-1748-2 or No. F-1774-2



Section No. F-1748

Distribution Curve
No. F-1748 150 WattsDistribution Curve
No. F-1774 200 Watts

Section No. F-1774

These units, being built-in, become an integral part of the building interior; they blend with most architectural designs. In most cases they are used in "general" lighting layouts; light is evenly spread over the room area when units are uniformly spaced on centers no greater than $1\frac{1}{4}$ times the mounting height. This type of lighting is used in stores, offices, banks, schools, churches, hospitals, studios, and public buildings.

Performance

The F-1748 and F-1774 series provide an intensive light distribution by means of an efficient optical train consisting of a specially designed Controlens

and square prismatic reflector. The Controlens† has the property of being able to accept rays of light approaching from equally opposite directions, at the same point on the lens, and diverge them an equally opposite amount. The diagram makes this clear.

Some light is emitted all the way up to the horizontal, but the quantity at the high angles (60° - 90°) is low, resulting in a comfortable appearance at normal angles of view. The appearance of the unit when installed in the ceiling is pleasing, both when lighted and unlighted. The emitted light is the same color as that of the lamp as crystal glass does not change the color of the light.

Cat. No.	Price Each	No. of Lens	Lamp Watts per Lens	Roughing Box (In.)			Face Plate (In.)		Plaster Opening (In.)		Std Pkg	
				Length	Width	Depth	Length	Width	Length	Width	Qty	Wt
F-1748	\$25.20	1	150	10 $\frac{1}{4}$	10 $\frac{1}{4}$	8 $\frac{7}{8}$	11 $\frac{3}{4}$	11 $\frac{3}{4}$	10 $\frac{3}{4}$	10 $\frac{3}{4}$	6	144
F-1748-2	**	2	150	18 $\frac{3}{4}$	10 $\frac{1}{4}$	9	20 $\frac{1}{4}$	11 $\frac{3}{4}$	19 $\frac{1}{4}$	10 $\frac{3}{4}$	..	...
F-1748-3	**	3	150	27 $\frac{1}{4}$	10 $\frac{1}{4}$	9	28 $\frac{3}{4}$	11 $\frac{3}{4}$	27 $\frac{3}{4}$	10 $\frac{3}{4}$	..	...
F-1748-4S	**	4	150	23	23	13	24 $\frac{1}{2}$	24 $\frac{1}{2}$	23 $\frac{1}{2}$	23 $\frac{1}{2}$	..	...
F-1774	30.60	1	300*	13 $\frac{7}{8}$	13 $\frac{7}{8}$	10 $\frac{7}{8}$	15 $\frac{3}{8}$	15 $\frac{3}{8}$	14 $\frac{3}{8}$	14 $\frac{3}{8}$	6	228
F-1774-2	75.60	2	300*	25 $\frac{3}{4}$	13 $\frac{7}{8}$	12 $\frac{1}{16}$	27 $\frac{3}{8}$	15 $\frac{3}{8}$	26	14 $\frac{1}{8}$	6	414
F-1774-3	**	3	300*	37 $\frac{7}{8}$	13 $\frac{7}{8}$	12 $\frac{1}{16}$	39 $\frac{3}{8}$	15 $\frac{3}{8}$	38 $\frac{1}{8}$	14 $\frac{1}{8}$	..	...
F-1774-4S	**	4	300*	26	26	12 $\frac{1}{16}$	26 $\frac{7}{8}$	26 $\frac{7}{8}$	26 $\frac{1}{4}$	26 $\frac{1}{4}$	..	...

*Medium base 6" light-center lamp.

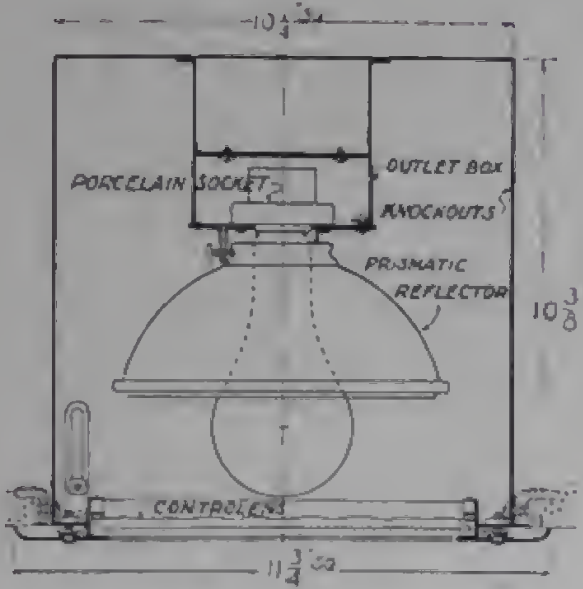
**Price on application.

Plaster rings are not furnished.

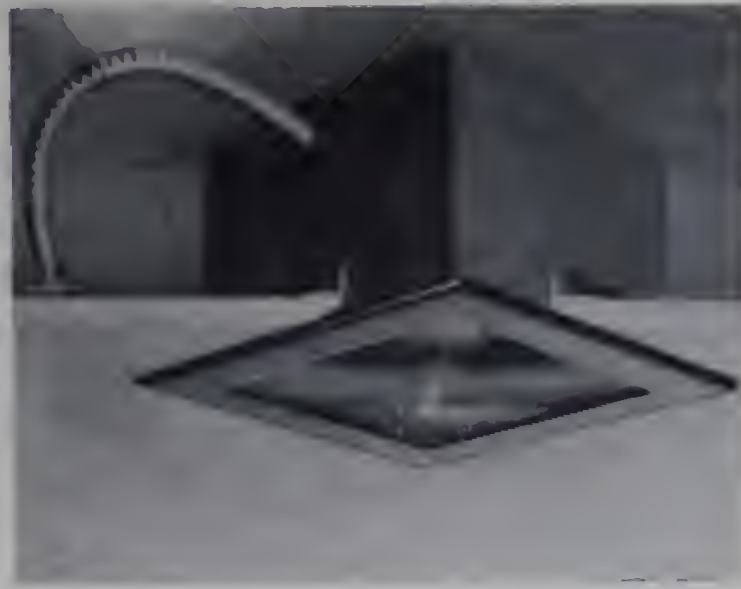
NOTE—Dimensions are approximate. Write for detailed sketch before making installation.

†The Holophane Company Limited.

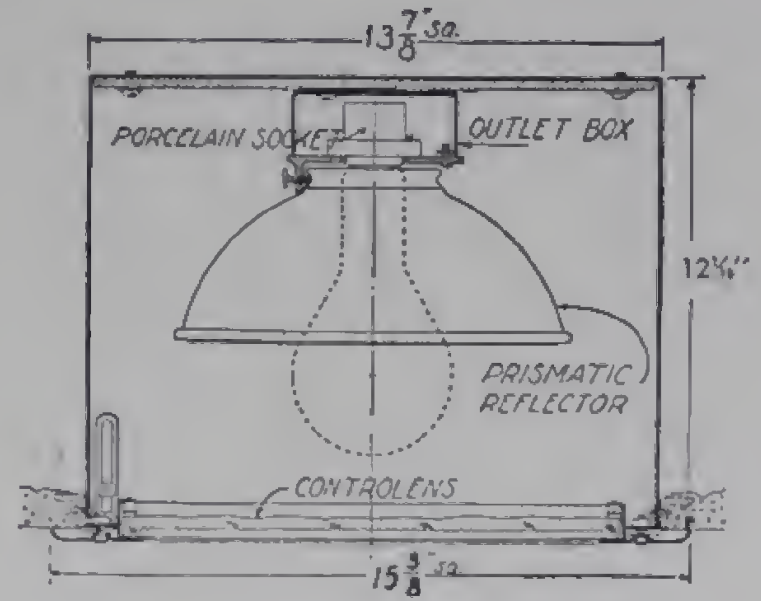
HOLOPHANE IN-BILT FLUSH UNITS



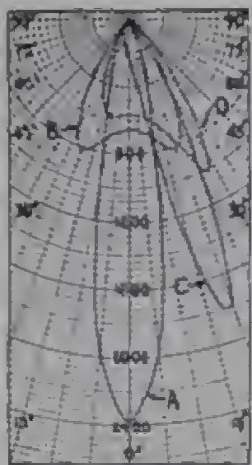
Section No. F-1739



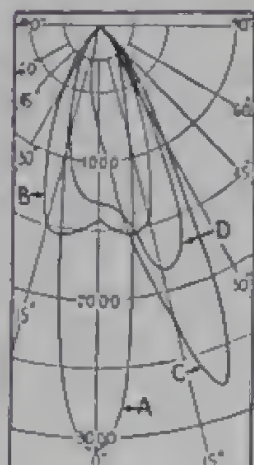
No. F-1739 or No. F-1765



Section No. F-1765



Distribution Curve
No. F-1739 150 Watts



Distribution Curve
No. F-1765 200 Watts

These In-Bilt units are used for three types of lighting:

General Lighting: in narrow high ceilinged interiors as may occur in some stores, churches, banks, gymnasiums, museums—where not more than two rows of outlets are used. For uniform illumination, these units should be installed on centers not exceeding 0.9 times the mounting height above the working plane.

Local Lighting: where the light is focused on people, objects, work areas, displays—as might occur with store counters, stage productions, inspection operations, laboratories, church pulpits.

General-Plus-Local-Lighting: where focusing beams are used to supplement existing installations by combination with the "general" system in use.

Performance

A variety of light patterns is possible varying from curve A through B, C and D as shown in the distribution curves on this page. Curve B, however, is the standard setting for units listed here. The change in light distribution results from changes in focus (distance of lamp filament from Controls) and lamp offset (distance of lamp filament to right or left of centerline of Controls). Some light is emitted all the way up to the horizontal but the quantity at the high angles (60°-90°) is low, resulting in a comfortable appearance at normal angles of view.

Cat. No.	Price Each	No. of Lens	Lamp Watts per Lens	Roughing Box (In.)			Face Plate (In.)		Plaster Opening (In.)		Std Pkg	
				Length	Width	Depth	Length	Width	Length	Width	Qty	Wt
F-1739	\$26.70	1	150	10 1/4	10 1/4	10 3/8	11 3/4	11 3/4	10 3/4	10 3/4	6	126
F-1739-2	**	2	150	18 3/4	10 1/4	10 1/2	20 1/4	11 3/4	19 1/4	10 3/4	..	...
F-1739-3	**	3	150	27 1/4	10 1/4	10 1/2	28 3/4	11 3/4	27 3/4	10 3/4	..	...
F-1739-4S	**	4	150	23	23	13	24 1/2	24 1/2	23 1/2	23 1/2	..	...
F-1765	32.30	1	300*	13 7/8	13 7/8	12 1/16†	15 3/8	15 3/8	14 3/8	14 3/8	6	228
F-1765-2	75.60	2	300*	25 3/4	13 7/8	12 1/16	27 3/8	15 3/8	26	14 1/8	6	390
F-1765-3	**	3	300*	37 7/8	13 7/8	12 1/16	39 3/8	15 3/8	38 1/8	14 1/8	..	...
F-1765-4S	**	4	300*	26	26	12 1/16	26 7/8	26 7/8	26 1/4	26 1/4	..	...

*Medium base 6" light-center lamp.

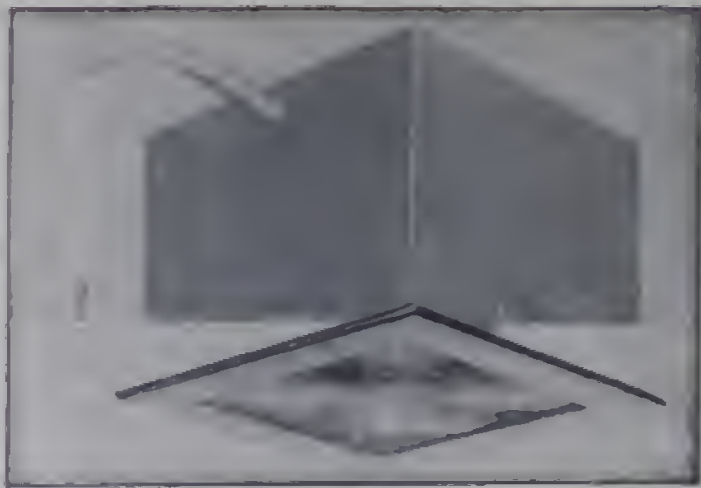
**Price on application.

†Depth necessary for settings "A" and "C". Otherwise F-1765 is 10 7/8" deep.

Plaster rings are not furnished.

NOTE—Dimensions are approximate. Write for detailed sketch before making installation.

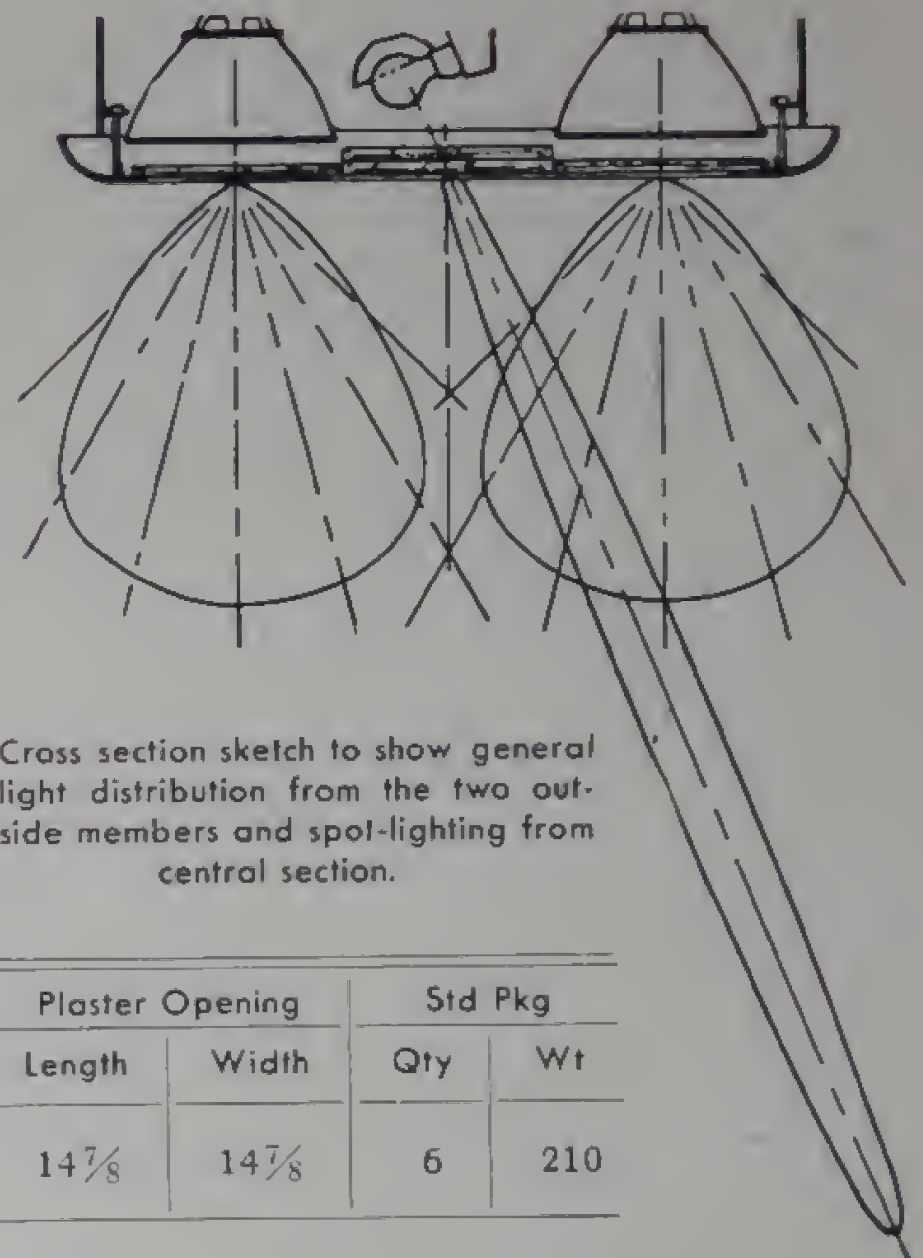
HOLOPHANE IN-BILT MODELITE



No. F-1778-M

The application of spot lighting to feature items of merchandise has become standard practice with display managers. Until the advent of the Modelite, this consisted of attaching spot lights to the ceilings or columns—a generally unsightly procedure.

The Modelite† is an In-Bilt Controlens lighting unit which makes it possible, for the first time, to spot light or “accent” merchandise display from a light source which is an integral part of the general lighting system. The result is unique in that the display is flooded with light without any distracting brightness of the source from which it comes.



Cross section sketch to show general light distribution from the two outside members and spot-lighting from central section.

Cat. No.	Price Each	Lamp Watts	Roughing Box (Inches)			Face Plate (In.)		Plaster Opening		Std Pkg	
			Length	Width	Depth	Length	Width	Length	Width	Qty	Wt
F-1778-M	\$61.20	250†	14 $\frac{5}{8}$	14 $\frac{5}{8}$	13 $\frac{7}{8}$	15 $\frac{3}{8}$	15 $\frac{3}{8}$	14 $\frac{7}{8}$	14 $\frac{7}{8}$	6	210

†G-30 Floodlight Service lamp.

‡R The Holophane Company Limited.

HOLOPHANE IN-BILT COUNTERLITE



No. E-1814
Surface Mounted



No. F-1814
Recessed



The name Counterlite indicates the chief application of this precision lighting unit—the lighting of store counters. Centered over the customer's edge, it projects an oval pattern of light—narrow across and spread along the counter. In this way, the majority of the light is concentrated on the display, resulting in higher illumination and greater attraction. Spill light takes care of traffic aisles and stock shelves.

Construction

These units are available for either recessed or surface mounting. The optical parts—a compound Controlens and a polished aluminum reflector—are supported by a No. 16 gauge steel box. In the case of the surface type, the standard external finish is silver-tone aluminum which serves as a prime coat if the unit is to be painted in the ceiling.

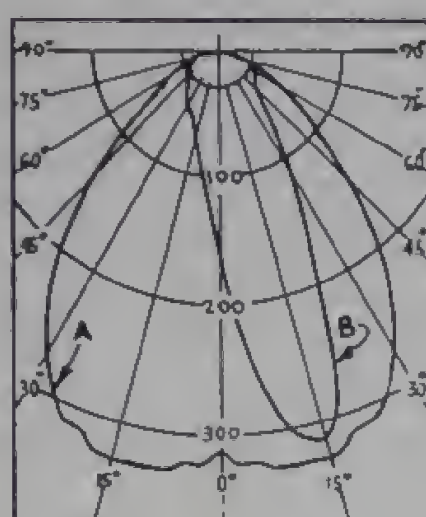
Cat. No.	Price Each	Lamp Watts	Roughing Box (Inches)			Face Plate (In.)		Plaster Opening (In.)		Std Pkg	
			Length	Width	Depth	Length	Width	Length	Width	Qty	Wt
E-1814	\$39.15	200-300*	14 $\frac{1}{2}$	14 $\frac{1}{2}$	8 $\frac{3}{4}$	15 $\frac{3}{8}$	15 $\frac{3}{8}$	14	14	6	180
F-1814	39.15	200-300*	13 $\frac{3}{4}$	13 $\frac{3}{4}$	7	15 $\frac{3}{8}$	15 $\frac{3}{8}$	14	14	6	156

*Medium base 6" light-center lamp.
Plaster ring is not furnished.

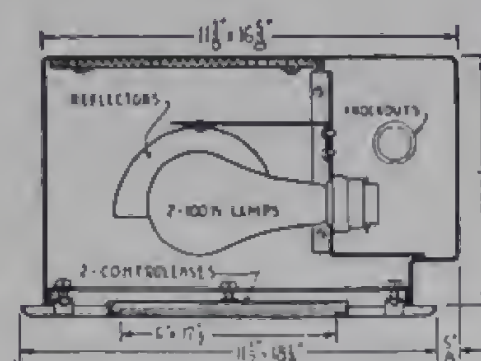
HOLOPHANE BLACKBOARD LIGHTING UNIT



No. E-796-2
Surface Mounted



Distribution Curve
No. F-796 100 Watts
A. Lateral Distribution
B. Vertical Distribution



Section No. F-796-2



No. F-796-2
Flush Mounted

These Controlens units are designed to light blackboards, bulletin boards, switchboard panels and similar vertical surfaces. The requirement for lighting a vertical surface is to bend the light beam toward the surface and then spread it out along the wall. The light should be directed to the surface at

a sharp angle so as to cut out specular reflection at normal viewing angles.

Generally, the 796 type is used as separate units in intermittent runs; also, for use with long blackboards. The 790 type is for use with continuous troughs or where a blackboard is isolated or narrow.

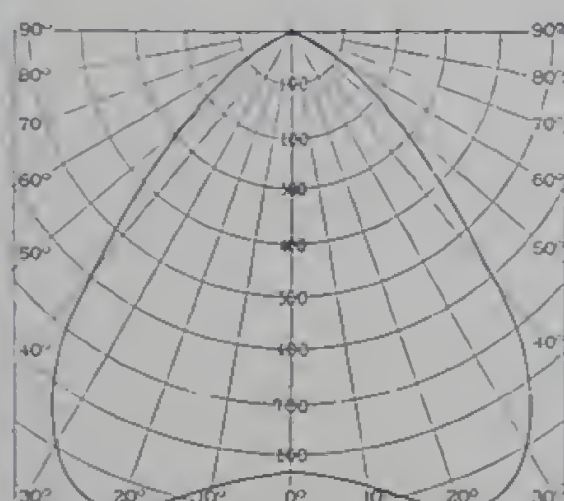
Cat. No.	Price Each	No. of Lens	Lamp Watts per Lens	Roughing Box (In.)			Face Plate (In.)		Plaster Opening (In.)		Std Pkg	
				Length	Width	Depth	Length	Width	Length	Width	Qty	Wt
E-796	\$21.60	1	150	8 $\frac{3}{8}$	9 $\frac{1}{2}$	5 $\frac{7}{16}$	..	..	..	..	6	60
E-796-2	21.20	2	150	15	9 $\frac{1}{2}$	5 $\frac{7}{8}$	..	..	..	..	6	120
F-796	24.30	1	150	9 $\frac{3}{8}$	8	6	9 $\frac{3}{8}$	9 $\frac{3}{8}$	8 $\frac{1}{4}$	8 $\frac{1}{4}$	6	78
F-796-2	27.00	2	150	16 $\frac{5}{8}$	11 $\frac{3}{8}$	7	18	11 $\frac{1}{2}$	16 $\frac{7}{8}$	10 $\frac{1}{4}$	6	120

NOTE re 790 type: Mechanical and dimensional details for E-790, E-790-2, F-790 and F-790-2 are identical with those for 796 Type. Prices on application*

HOLOPHANE IN-BILT SQUARE "NO-BOX" UNIT



No. R-2772 or R-2773



Distribution Curve
No. R-2772 200 Watts

These No-Box units are designed for installation without a metal housing, which results in considerable over-all economies. Efficient lighting perform-

ance between cleaning intervals is maintained because of the enclosed construction.

They are designed for tile or block ceilings and being 12" square will exactly replace a single tile. The R-2772 will fit any standard block construction, such as Celotex, and may be attached directly to the ceiling framing by means of a metal frame supplied with the unit. The R-2773 is especially designed for attachment to the "T" bar construction used with Johns-Manville Sanacoustic tile ceilings.

All these units have an intensive light distribution and are used mainly for general lighting. Spacings up to 1 $\frac{1}{4}$ times the mounting height above the work plane will deliver a uniform degree of illumination throughout the room.

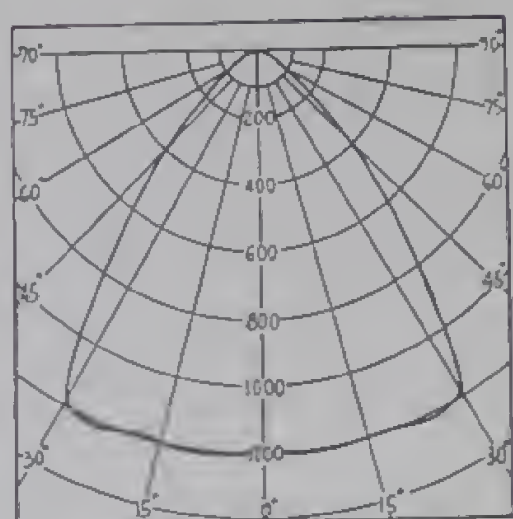
Cat. No.	Price Each	Lamp Watts	Dimensions (Inches)		Net Wt Each	Std Pkg	
			Depth	Face Plate		Qty	Wt
R-2772	\$24.90	200-300*	12 $\frac{1}{8}$	12 x 12	14	6	120
R-2773	24.90	200-300*	12 $\frac{1}{8}$	12 x 12	13	6	120

*Medium base 6" light-center lamp.

HOLOPHANE IN-BILT ROUND "NO-BOX" UNITS



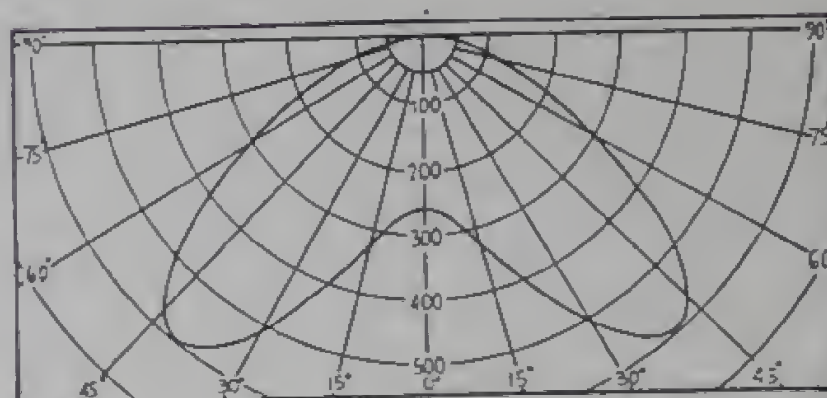
No. R-1894



Distribution Curve
No. R-1894 200 Watts



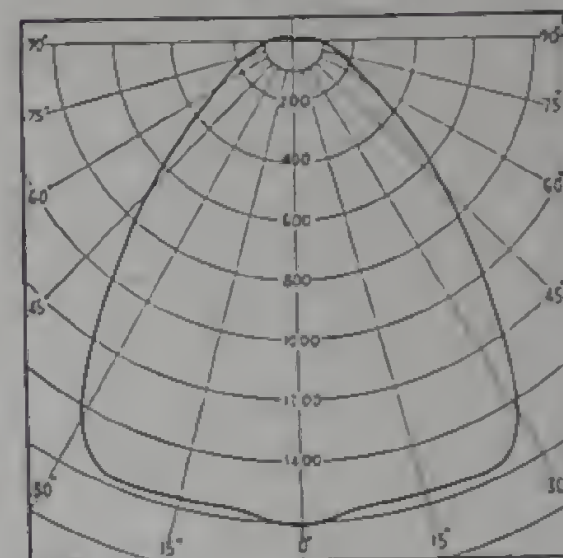
No. R-2120, No. R-2130 or No. R-2140



Distribution Curve
No. R-2130 200 Watts



No. R-5544



Distribution Curve
No. R-5544 300 Watts

R-1894: This flush unit, with round Controlens, is used for general lighting applications. It has been designed for installation without metal housing, which results in considerable over-all economies. Its round contour makes it suitable for certain architectural requirements. High lighting performance between cleaning intervals is assured because of the enclosed construction.

To maintain effective and uniform illumination, it should be installed on spacings not exceeding $1\frac{1}{4}$ times the mounting height above the working plane.

R-2120, R-2130 and R-2140: "In-Bilt" Reflector-Refractors combine beauty with efficiency. The design of the prismatic element harmonizes with all types of interiors and the control of the direct and reflected rays allows greater concentration of down light on working areas. Controlled light through the exposed portion affords pleasing ceiling illumination. Easy relamping is accomplished through the removable cup in the refractor member of the unit.

Units should be spaced on centers not exceeding 2 times the mounting height above the working plane.

R-5544 (In-Bilt Correctalite†): This unit combines excellent design characteristics with high lighting efficiency. It embodies semi-recessed design, with the light-controlling glassware projecting below the ceiling so as to provide some ceiling illumination. Easily relamped through a removable prismatic bottom plate.

For essentially uniform illumination install In-Bilt Correctalites on spacings not to exceed $1\frac{1}{4}$ times the mounting height above the working plane.

Installation

All units include a plaster ring which is first set into position before the ceiling is plastered. Flexible wiring from the outlet box is brought to the socket in the fitter. The fitter is attached to the neck of the unit and the assembly, resting on the finishing ring, is bolted into position to the ears of the plaster ring.

Cat. No.	Price Each	Lamp Watts	Distribution	Dimensions (Inches)			Std Pkg	
				Diam Face Plate	Depth Recessed	Diam Glass	Qty	Wt
R-1894	\$24.50	200-300*	Intensive	15 $\frac{1}{2}$	11 $\frac{3}{4}$	13 $\frac{1}{2}$	6	120
R-2120	14.90	150	Extensive	12 $\frac{3}{8}$	7	9 $\frac{3}{4}$	6	54
R-2130	23.35	200	Extensive	14 $\frac{3}{4}$	8 $\frac{1}{4}$	12	6	84
R-2140	29.50	300*	Extensive	16 $\frac{3}{4}$	8 $\frac{1}{8}$	14	6	120
R-5544	36.90	200-300*	Intensive	19	6 $\frac{3}{8}$	16	6	150

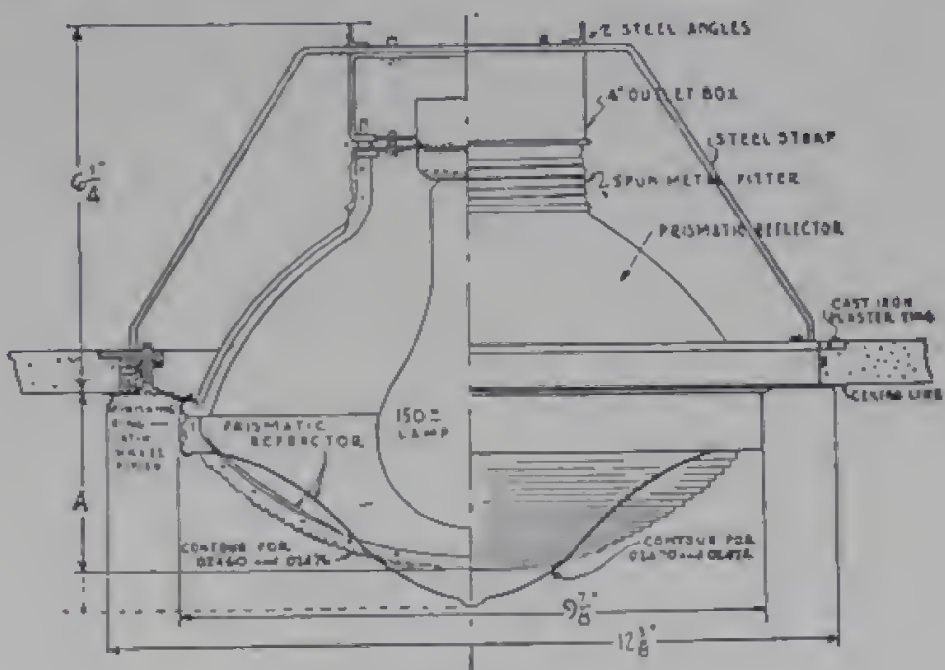
*Medium base 6" light-center lamp.

† R The Holophane Company Limited

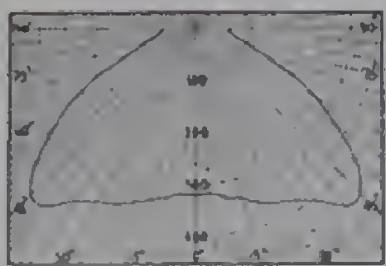
HOLOPHANE IN-BILT REFLECTOR-REFRACTOR



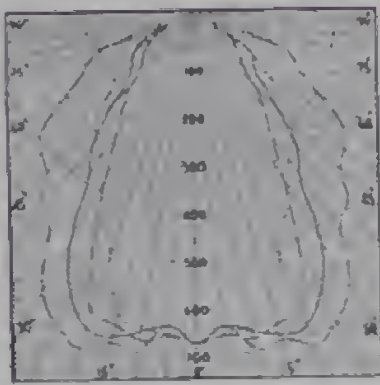
No. R-2460



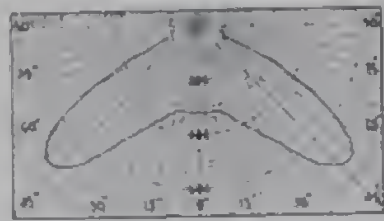
Cross Section



Distribution Curve
No. R-2460, 150 watts



Distribution Curve No. R-2476, 150 watts
- - - - - Through 90° lateral plane—across aisle
— — — — Through 0° lateral plane—along aisle
— — — — Through 14° lateral plane
— — — — Through 26½° lateral plane



Distribution Curve No. R-2472, 150 watts
- - - - - across aisle
— — — — along aisle

In-Bilt reflector-refractor No. R-2460 is logically applicable where there is a low ceiling to be considered. Both its shallow lower refractor member and its very extensive light distribution are suited to this job condition. Extensive light distribution permits normal spacings for adequate coverage, despite low ceiling.

R-2460 In-Bilt units combine architectural beauty with lighting efficiency. The design of the prismatic element harmonizes with all types of interiors, and the control of the direct and reflected rays allows greater concentration of down-light on working areas. Controlled light through the exposed portion affords pleasing ceiling illumination. For essentially uniform illumination install R-2460 on spacings of two times the mounting height.

R-2460 and R-2470, having a symmetrical light distribution, are for general lighting. R-2472, asymmetric, is for corridor lighting. R-2476, asymmetric, is for stack lighting.

R-2460 is comprised of the 2460 reflector-refractor and fixture for semi-recessing it in the ceiling.

The reflector-refractor consists of an upper reflector part and a lower refractor part. The two parts are welded together. The top part reflects the upward light down. The lower part refracts the reflected light as well as the direct light from the lamp, into useful directions and at the same time diffuses it.

The fixture consists of a threaded fitter attached to an outlet box which is held by a steel strap connected with a cast iron plaster ring. A steel finishing ring, satin nickel finish, is attached to the plaster ring by means of four flush screws.

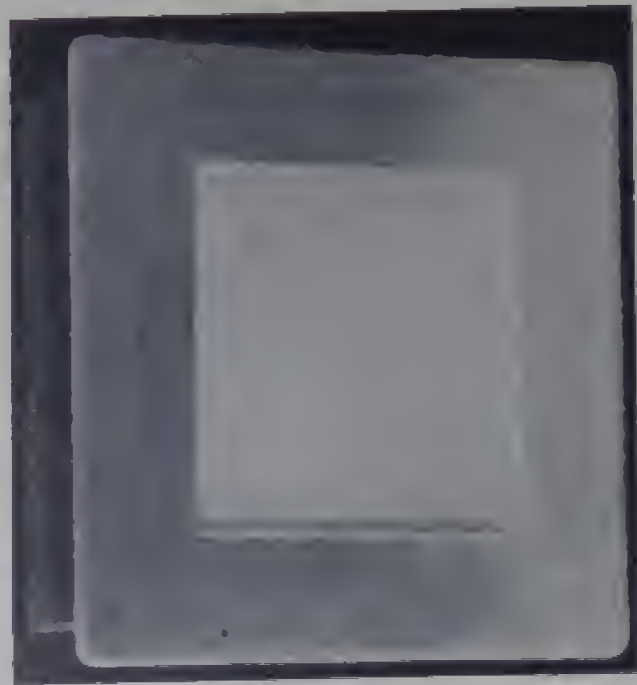
When the reflector-refractor is inserted in the threaded fitter, the flange comes up tightly against the finishing ring, making for a neat appearance.

Installation

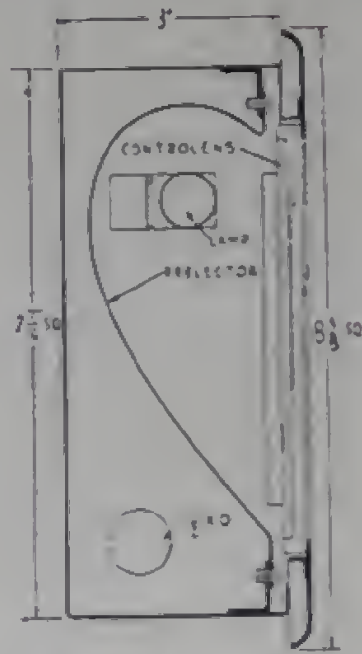
Set plaster ring in position and finish ceiling. Connect flexible wiring from outlet box to socket in fitter. Attach finishing ring to plaster ring. Screw reflector-refractor in tight position against finishing ring. Asymmetric units have orienting fitters with screw adjustment to allow proper positioning to assure full realization of the special light patterns.

Cat. No.	Price Each	Lamp Watts	Dimensions (Inches)				Net Wt Each	Std Pkg	
			Recessing Depth	Diam Plaster Opening	Diam Finish-ing Ring	"A" Exposed Part of Unit		Qty	Wt
R-2460	\$18.00	150	7½	11⅞	12⅜	3⅛	9	8	100
R-2470	18.00	150	7½	11⅞	12⅜	4	9	8	100
R-2472	18.00	150	7½	11⅞	12⅜	4	9	8	100
R-2476	18.00	150	7½	11⅞	12⅜	3⅛	9	8	100

HOLOPHANE IN-BILT NIGHT LIGHT



No. W-792



Section No. W-792

This Controlens unit is designed for night lighting in hospital sickrooms, corridors, theatre aisles, bedrooms in homes, hotels, clubs, nurseries and similar locations. It throws an even sheet of low intensity

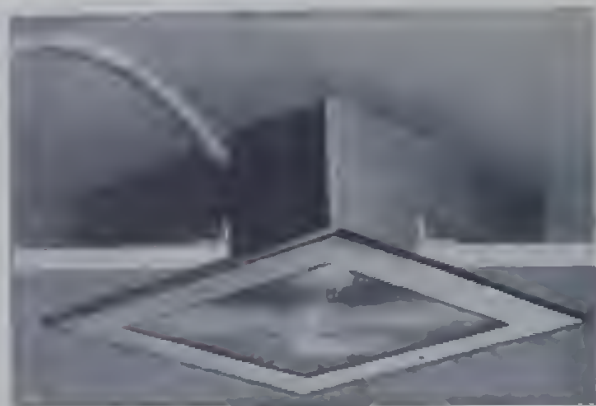
light over the lower part of the room or corridor without glare. The light cuts off abruptly at knee height. When concealed by placement in the wall beneath the bed, the floor is lighted uniformly, revealing the room for night inspection without waking the patient. Switches should be located outside the door. For corridor lighting, the height of the top of the unit may be determined by dividing the corridor width by 4.3.

The shallow depth of the unit (3") allows recessing in the thinnest standard structural partitions. This shallowness is accomplished through use of the slender T-6 1/2, 25 watt tubular lamp. The prismatic Controlens is easily kept clean by dusting or washing with a damp cloth. The front face is readily removed to service the lamp.

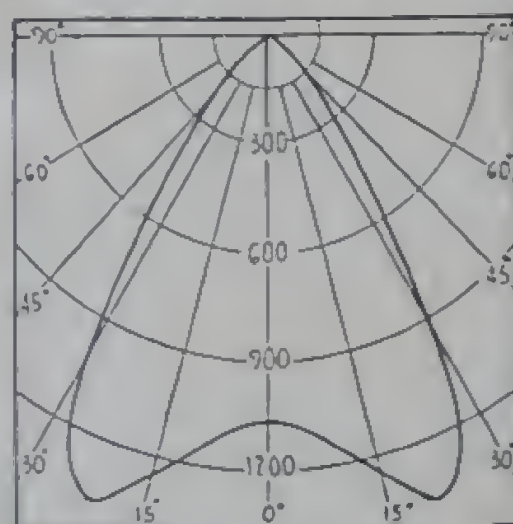
Cat. No.	Price Each	Lamp Watts	Roughing Box (Inches)			Face Plate (In.)		Plaster Opening (In.)		Std Pkg	
			Length	Width	Depth	Length	Width	Length	Width	Qty	Wt
W-792	\$22.70	25	7 1/2	7 1/2	3	8 3/4	8 3/4	7 3/4	7 3/4	10	48

Plaster ring is not furnished.

HOLOPHANE IN-BILT PSYCHIATRIC LIGHTS



No. A-739 or No. A-765

Distribution Curve
No. A-765 200 Watts

The need for keeping "disturbed" patients under strict control and at the same time preventing them from harming themselves, dictates the mechanical features of the lighting system.

These special purpose Controlens units have the following characteristics which make them suitable for this critical application:

1. The unit is designed for flush installation in the ceiling—the hardest place for the patient to reach.
2. The unit is constructed as strong mechanically as possible.
3. The Controlens is Hi-Stress (high impact resisting) prismatic glass.
4. Unit can only be opened with special tool.
5. The unit is dirt-tight and requires a minimum of maintenance; it need only be opened to replace burned-out lamps.
6. The unit contains, in addition to the main lamp, an adjustable 10 watt auxiliary lamp that can always be located to throw the night light beam away from the bed so as not to awaken or disturb the patient.

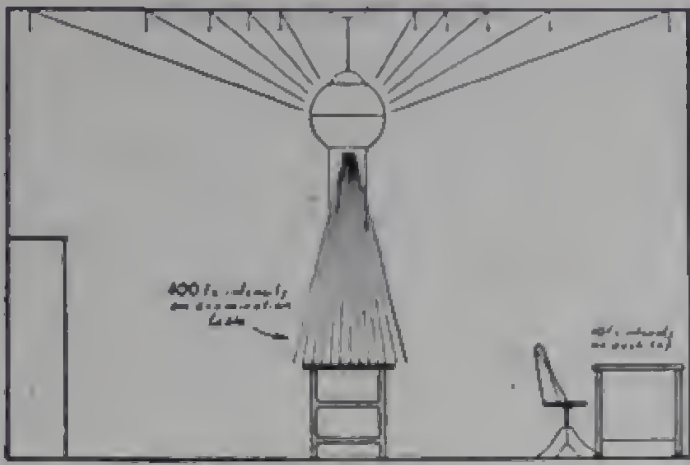
Cat. No.	Price Each	Lamp Watts	Dimensions (Inches)			Face Plate (In.)		Plaster Opening (In.)		Std Pkg	
			Length	Width	Depth	Length	Width	Length	Width	Qty	Wt
A-739-60	**	60	10 1/2	10 1/2	4 1/2	11 3/4	11 3/4	10 3/4	10 3/4	..	..
A-739-100	**	100	10 1/2	10 1/2	4 1/2	11 3/4	11 3/4	10 3/4	10 3/4	..	..
A-739-150	**	150	10 1/2	10 1/2	4 1/2	11 3/4	11 3/4	10 3/4	10 3/4	..	..
A-765	\$37.80	200	14 1/8	14 1/8	6	15 3/8	15 3/8	14 3/8	14 3/8	6	180

**Price on application.
Plaster rings are not furnished.

HOLOPHANE MEDICAL EXAMINATION UNIT



No. CS-5000



Distribution No. CS-5000

The nature of the work performed by the physician in a medical examination room calls for two types of lighting:

- 1. High level of general illumination to light the entire room.

- 2. An intense beam directly on the examination table when he is checking the patient.

The Holophane medical examination unit is a double duty lighting device satisfying both requirements.

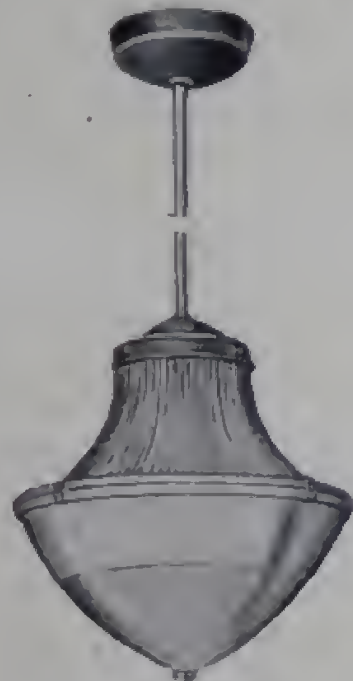
Construction

The prismatic glass globe is entirely smooth outside and can be readily wiped clean with a damp cloth; the fixture finish is smooth and washable as well. The lamp is directly accessible through a hinged bottom.

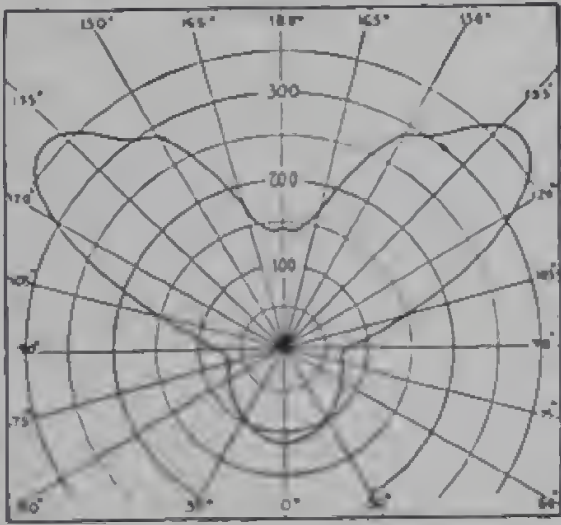
The fixture terminates in a 3/8" female hickey for direct attachment to outlet box. It should be installed directly over the examination area.

Cat. No.	Price Each	Lamp Watts	Dimension (Inches)		Net Wt Each	Std Pkg	
			Diam	Depth		Qty	Wt
CS-5000	\$63.00	500 I.F.	14	36	30	1	40

HOLOPHANE TWILITE SEMI-INDIRECT UNIT



No. S-7346



Distribution Curve
No. S-7346 150 Watts

This unit is for use specifically in nursing areas, wards, semi-private and private rooms. The physical predicament of the hospitalized patient is taken into account by the Holophane Twilite.* The five features that make the Twilite the logical first choice for this critical application are:

- 1. The semi-indirect light distribution gives the

room a soft, even illumination suitable for this purpose.

- 2. Since the unit is luminous, there are no "blind spots" to irritate the patient who may have to gaze at the ceiling for long unbroken periods.

- 3. At the same time the Twilite has a low enough surface brightness of its own so that it does not become a glare source.

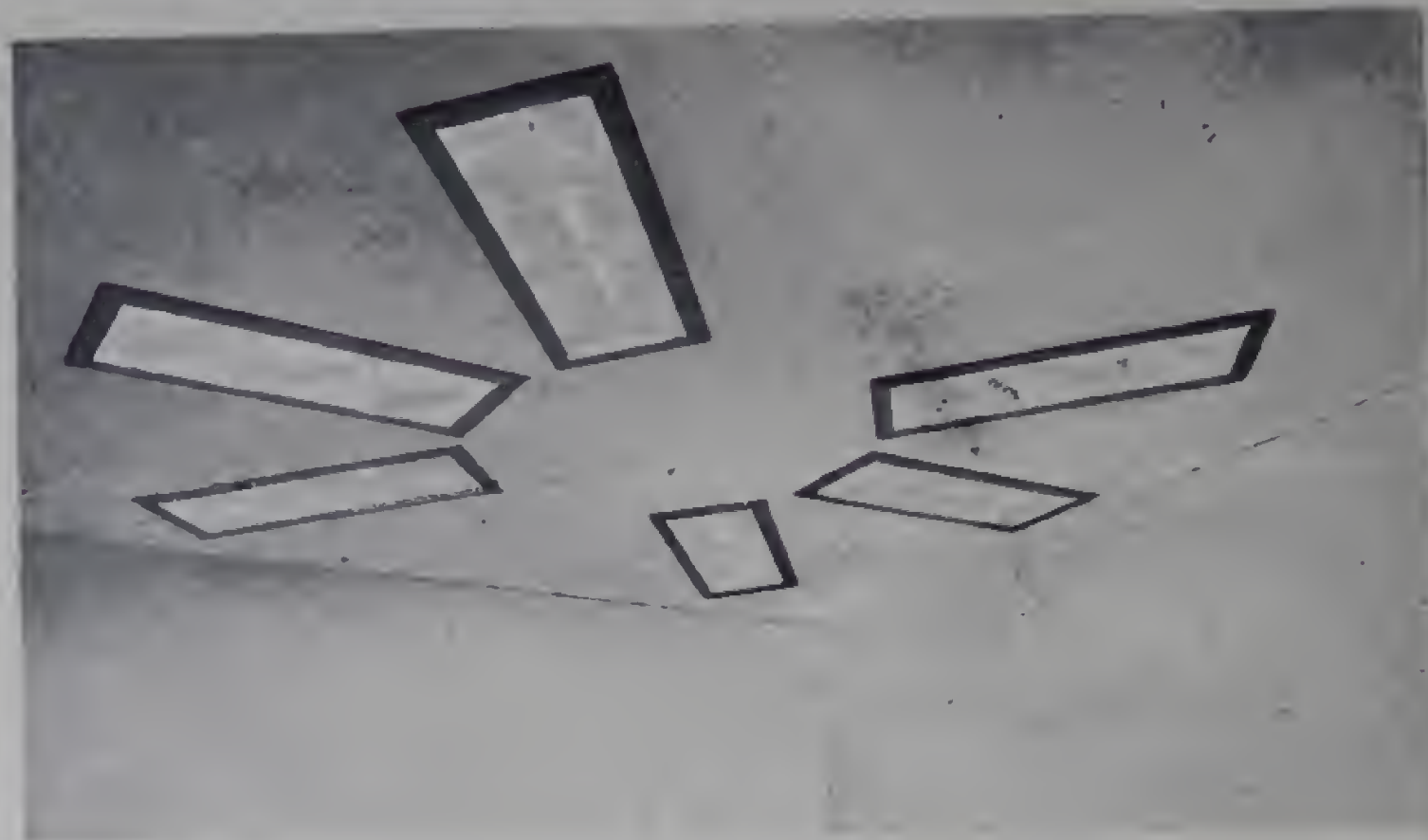
- 4. Its dust and dirt depreciation is low for two reasons: (a) The light control surfaces are entirely enclosed, (b) Dust does not incline to settle on the steep sloped surface of the top of the Twilite.

- 5. The unit is designed so that it can be equipped with either a 150 or 200 watt standard lamp plus two small 7 watt candelabra base auxiliary lamps.

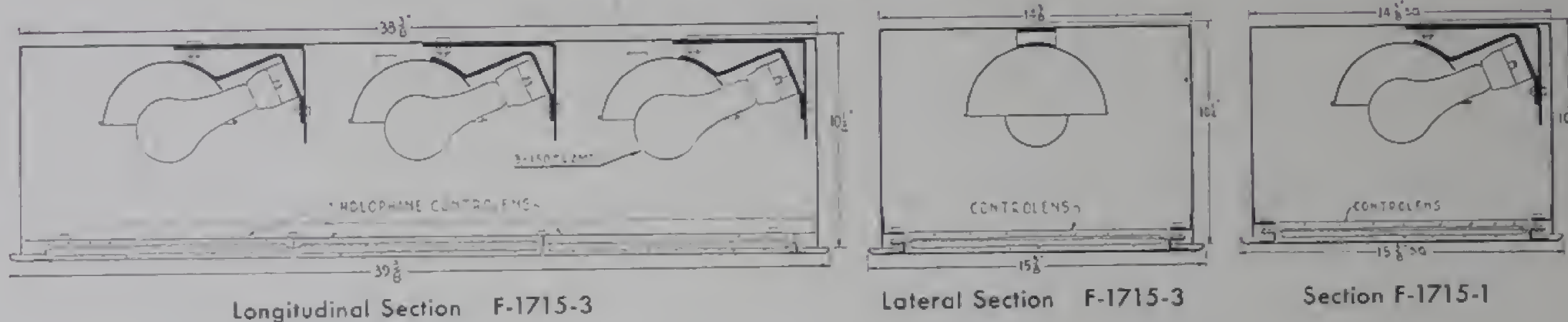
Cat. No.	Price Each	Lamp Watts	Dimension (Inches)		Net Wt Each	Std Pkg	
			Diam	Depth		Qty	Wt
C-7346	\$32.40	150-200	14	17 5/8	17	8	184
S-7346	33.30	150-200	14	35 5/8	18	8	200

For additional length rod hangers, add \$0.70 per foot or fraction thereof.
*® The Holophane Company Limited.

HOLOPHANE SURGICAL LIGHTING SYSTEM



Major Surgical Lighting System



Longitudinal Section F-1715-3

Lateral Section F-1715-3

Section F-1715-1

In the field of surgery, precision lighting is of crucial importance. Holophane engineering has provided outstanding improvements in this specialized illumination. Consider the features that distinguish the new Holophane Surgical Lighting System from all others:

Efficient

Scientific grouping of enclosed multi-lens optics assures maintenance of intense illumination—without sacrifice of correct brightness throughout the entire field of view.

Safe

Location of lighting systems remote from anaesthesia zone eliminates hazards of explosion; multiple lamping avoids danger of interruption from lamp burnouts.

Aseptic

Permanently flushed into tight ceiling enclosures. No moving parts to dislodge dust.

Modern

Direction and pattern of light are pre-set; can be changed, without distracting surgeon, by remote wall switches.

Visual Comfort

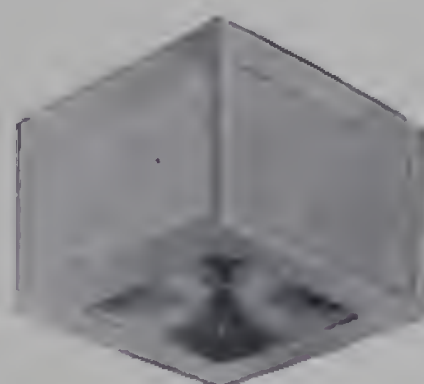
Brightness contrasts throughout the operating room are extremely low. The lenses that could conceivably cross the surgeon's glance are only $1\frac{1}{2}$ times brighter than the minimum wound brightness; are less bright than the maximum wound brightness.

Thermal Comfort

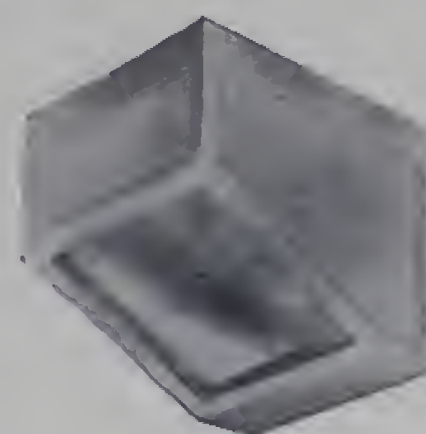
No matter what the surgeon's position, lights that his body blocks can be switched off to reduce temperature rise on surgeon's back—important in lengthy operations. In addition, the use of heat-absorbing lenses accomplishes two purposes: reduces the direct infra-red transmission (heat waves) and corrects the light colour toward true white.

Cat. No.	Price Each	No. of Lens	Lamp Watts per Lens	Roughing Box (Inches)			Face Plate (Inches)		Plaster Opening (In.)		Std Pkg	
				Length	Width	Depth	Length	Width	Length	Width	Qty	Wt
F-1715-1	\$ 54 00	1	150	$14\frac{3}{8}$	$14\frac{3}{8}$	$10\frac{1}{4}$	$15\frac{3}{8}$	$15\frac{3}{8}$	$14\frac{5}{8}$	$14\frac{5}{8}$	6	228
F-1715-3	126 00	3	150	$38\frac{3}{8}$	$14\frac{3}{8}$	$10\frac{1}{4}$	$39\frac{3}{8}$	$15\frac{3}{8}$	$38\frac{5}{8}$	$14\frac{5}{8}$	6	624

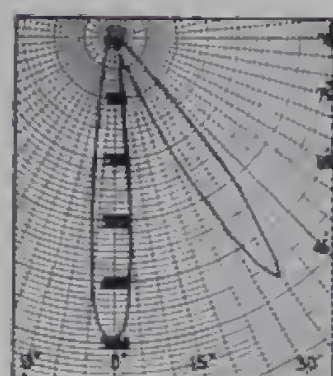
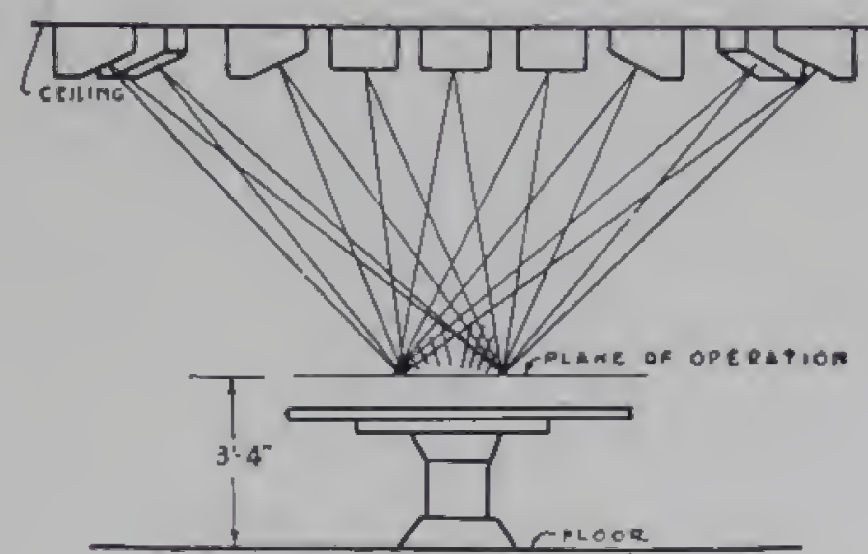
HOLOPHANE HOSPITAL OPERATING ROOM LIGHTING



No. D-729-L



No. D-729-T

Distribution Curve
No. D-729-L and
No. D-729-T

Elevation

The Holophane Multiple Spot Lens System was originally designed for minor surgeries, delivery rooms, first aid rooms, emergency rooms, and fracture rooms. Since then, the practicability of the system from an operating stand point, its flexible adaptation to unusual structural conditions, and its low cost, have also made it popular for major surgery use.

Performance

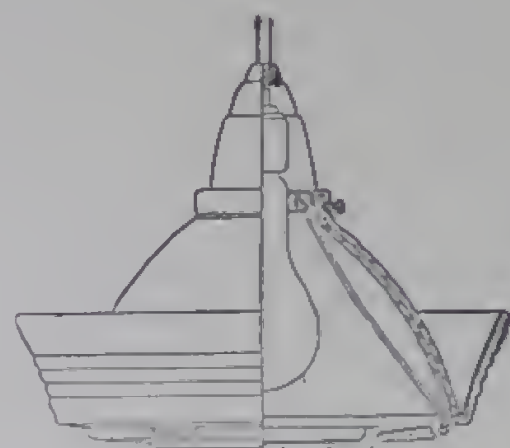
The system provides a number of light beams converging to form a high intensity spot on the operating area, feathering into a larger area of less intense light over rest of table and at the same time spreading the correct degree of general illumination

over the entire room. It is without glare, interfering shadows or noticeable heat. Each system is separately designed for the particular purpose it is to serve, for the exact direction of light required and for the amount of illumination needed.

A complete Multiple Spot Lens System is composed of a number of individual lighting elements. Those that are level are designated as D-729-L; those which are tilted are known as D-729-T. Both types of elements are mounted directly on the ceiling. The greater number of individual elements there are, the larger will be the varieties of possible light patterns. Our Lighting Service Department will co-operate in preparing layouts to meet the specific requirements.

Cat. No.	Price Each	Lamp Watts	Dimensions (Inches)			Net Wt Each	Std Pkg	
			Length	Width	Depth		Qty	Wt
D-729-L	\$36.50	150	10 $\frac{3}{4}$	10 $\frac{3}{4}$	7 $\frac{5}{8}$	10	4	60
D-729-T	36.50	150	10 $\frac{1}{2}$	9	8 $\frac{1}{2}$	8	4	52

HOLOPHANE SEMI-DIRECT CORRECTALITE



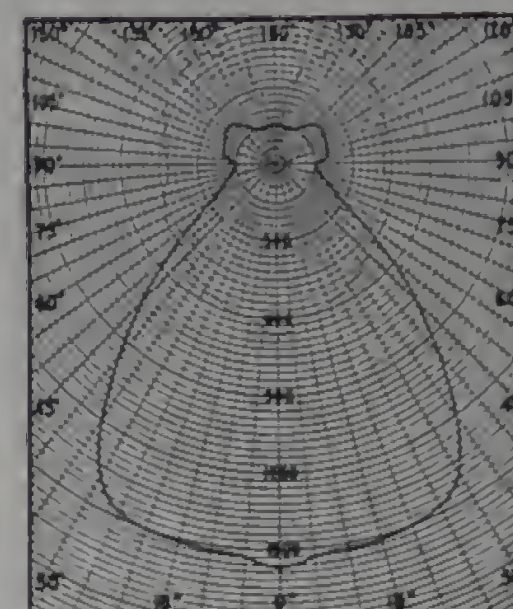
Section



No. S-5540



No. C-5540

Distribution Curve
with 300 Watt Lamp

The Holophane Correctalite represents a new trend in semi-direct lighting. It is admirably suited for use in drafting rooms, offices, service areas, laboratories, public buildings, etc. The smooth, flowing lines of the fixture accentuate the attractive form of the prismatic light director which controls the reflected and direct light rays. There is greater concentration of down light on working areas, with adequate ceiling illumination.

Correctalite affords all the design and lighting advantages of Controlens lighting for interiors not structurally suited for recessed installations. These units are available in three types of mounting: 1—close-ceiling (C-5540), 2—stem suspension with ball and socket alignment (S-5540), 3—semi-recessed construction (R-5544). (See page 114).

Construction

The light controlling element consists of two parts—a prismatic reflector and a bottom bowl-shaped

refracting member in which there is a removable plate to permit easy relamping. These two parts are safely and securely joined as one unit by three rods which engage the bottom bowl and fasten to an annular ring in the neck of the reflector.

Fixtures are No. 22 gauge metal. Ceiling type fixtures are equipped with canopy cross bar and barrel nuts for mounting. Suspension type fixtures are of rigid $\frac{5}{8}$ " stem, ball and swivel construction with slip canopy, and are arranged for direct attachment to outlet box by suitable hickies and extensions furnished by the contractor. All fixtures are furnished wired complete. Standard finish is white metal. Enclosed construction improves maintenance; easy cleaning restores the high original efficiency.

Spacing

For uniform horizontal illumination, spacings should not exceed $1\frac{1}{4}$ times the mounting height above the work.

COMPLETE UNIT							FIXTURE ONLY				GLASSWARE ONLY			
Cat. No.	Price Each	Lamp Watts	Dimen (In.)		Std Pkg		Cat. No.	Price Each	Std Pkg		Cat. No.	Price Each	Std Pkg	
			Diam	Depth	Qty	Wt			Qty	Wt			Qty	Wt
C-5540	\$28.20	200-300*	15 $\frac{3}{8}$	12	3	66	0541	\$5.70	3	10	5540	\$22.50	3	56
S-5540	30.00	200-300*	15 $\frac{3}{8}$	32 $\frac{1}{2}$	3	73	0540	7.50	3	17	5540	22.50	3	56

*Medium base 6" light-center lamp.
For additional length rod hangers, add \$0.70 per foot or fraction thereof.

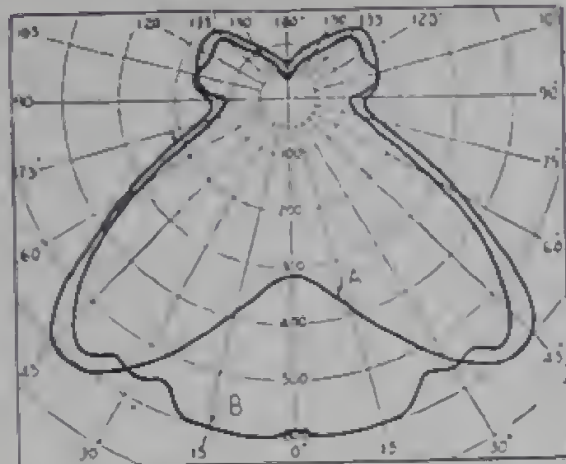
HOLOPHANE SEMI-DIRECT REFLECTOR-REFRACTOR



Suspension Type



Ceiling Type



Distribution Curve

- A. No. C-2130 200 Watts
B. No. C-2133 200 Watts

The Holophane Reflector-Refractor is the ideal direct lighting unit. Its efficient light controlling qualities assure the greatest possible amount of light delivered to the working areas, where it is needed. The sparkling prismatic crystal glass together with the satin nickel fixture design presents a harmonious combination for present-day general lighting purposes. It is especially suitable for public building spaces, school laboratories and general

service areas or for offices and classrooms where ceiling conditions do not permit the use of semi-indirect luminaires.

Reflector-Refractor Characteristics

1. Direct distribution (70% of output downward and 30% upward).
2. Minimum flux at glare angles.
3. Maximum efficiency.
4. Minimum dust depreciation.
5. Extensive or Intensive distribution.
6. Attractive appearance.
7. Ease in re-lamping.

Construction

Fixtures are of 22 gauge metal of smooth contour design. Ceiling type fixtures are provided with crossbar and barrel nuts for mounting. Suspension fixtures are of rigid stem, ball and swivel construction with drop canopy and terminate in a $\frac{3}{8}$ " female hickey for direct attachment to outlet box by suitable hickies and extensions furnished by the contractor. All fixtures are furnished wired complete. Standard finish is white metal.

Reflector-Refractors are easily re-lamped by removing bottom cup.

Spacing

Intensive units should be spaced on centres not exceeding $1\frac{1}{4}$ times the mounting height. Extensive units should be spaced on centres not exceeding 2 times the mounting height.

COMPLETE UNIT							FIXTURE ONLY				GLASSWARE ONLY			
Cat. No.	Price Each	Lamp Watts	Dimen (In.)		Std Pkg		Cat. No.	Price Each	Std Pkg		Cat. No.	Price Each	Std Pkg	
			Diam	Depth	Qty	Wt			Qty	Wt			Qty	Wt
CEILING TYPE UNITS														
C-2120	\$12.60	100†-150	9¾	11½	8	72	0392	\$5.40	8	20	2120	\$ 7.20	8	52
C-2130	18.90	200	12	13½	6	102	0393	5.40	6	16	2130	13.50	6	86
C-2133*	18.90	200	12	13½	6	102	0393	5.40	6	16	2133	13.50	6	86
C-2140	24.50	300-500	14	15	5	111	0394	5.70	5	16	2140	18.80	5	95
C-2143*	24.50	300-500	14	15	5	111	0394	5.70	5	16	2143	18.80	5	95
SUSPENSION TYPE UNITS														
S-2120	14.40	100†-150	9¾	30⅜	8	77	0572	7.20	8	25	2120	7.20	8	52
S-2130	20.70	200	12	32	6	106	0573	7.20	6	20	2130	13.50	6	86
S-2133*	20.70	200	12	32	6	106	0573	7.20	6	20	2133	13.50	6	86
S-2140	26.30	300-500	14	33½	5	115	0574	7.50	5	20	2140	18.80	5	95
S-2143*	26.30	300-500	14	33½	5	115	0574	7.50	5	20	2143	18.80	5	95

*Intensive distribution.

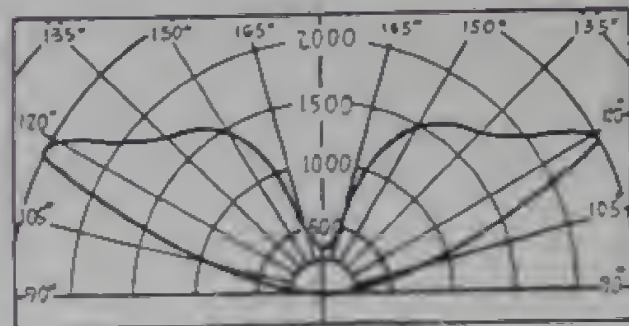
†Use $\frac{3}{8}$ " socket extension for 100 w. lamp.

For additional length rod hangers, add \$0.70 per foot or fraction thereof

HOLOPHANE BOWL REFLECTOR LUMINAIRE



No. S-5640

Distribution Curve
No. S-5640 500 Watts

These units are ideal for the lighting of offices, classrooms and other locations where constant fine-detail work is performed. Maximum eye comfort is provided by the absence of shadows and the low brightness of the luminaires. Prismatic action in the outer skirt bends the light out at wide angles over the ceiling without spots, streaks or shadows.

Graceful contour and excellent fixture design give these units broad architectural adaptability.

Construction

The fixture has a typical stem suspension, with ball and socket aligner. The husk supports a crystal-glass fluted prismatic bowl by means of three rods terminating in the flattened portion. Interchangeable glass rings, fitting in the bottom opening, take care of the variation in lamp size and constitute the only difference between the two units.

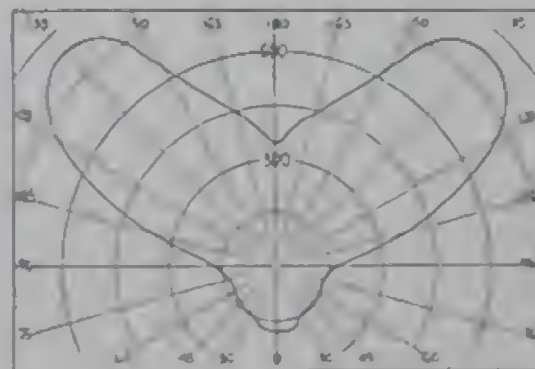
COMPLETE UNIT							FIXTURE ONLY				GLASSWARE ONLY			
Cat. No.	Price Each	Lamp Watts	Dimen (In.)		Std Pkg		Cat. No.	Price Each	Std Pkg		Cat. No.	Price Each	Std Pkg	
			Diam	Depth	Qty	Wt			Qty	Wt			Qty	Wt
S-5630	\$25 85	300 I.F.*	17 1/2	30 3/8	4	90	0534	\$7 50	4	15	5630	\$18 35	4	75
S-5640	25 85	500 I.F.*	17 1/2	30 3/8	4	90	0534	7 50	4	15	5640	18 35	4	75

*Mogul base inside frosted bowl reflector lamp.

HOLOPHANE SEMI-INDIRECT FILTERLITE

Suspension Type
No. F-200

Ceiling Type No. CF-200

Distribution Curve
No. F-200 300 Watts

The "Filterlite"† is admirably suited for office or similar work because of the outstanding characteristics listed below.

1. Semi-indirect distribution (80% of output upward—20% downward).
2. High efficiency.
3. Low brightness.
4. No permanent deterioration.
5. Wide spread ceiling light.
6. No shadows or streaks.

Construction

The unit is smooth outside and tightly enclosed. The upper portion is sloped so that a minimum of dust gathers on the surface. The lower section of the bottom piece is backed-up with a dense diffusing glass liner. The fixtures are finished white metal.

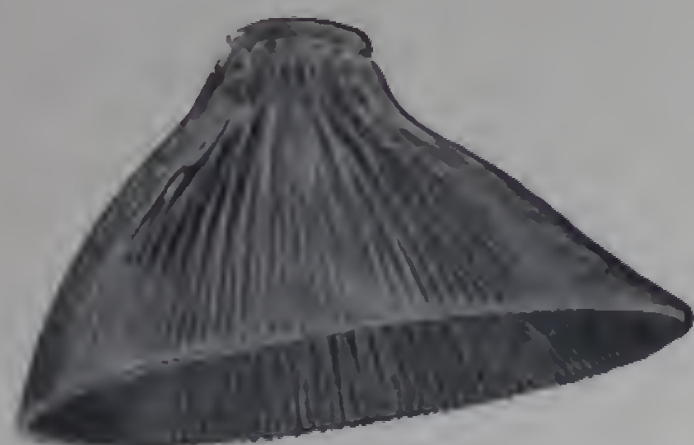
COMPLETE UNIT							FIXTURE ONLY				GLASSWARE ONLY			
Cat. No.	Price Each	Lamp Watts	Dimen (In.)		Std Pkg		Cat. No.	Price Each	Std Pkg		Cat. No.	Price Each	Std Pkg	
			Diam	Depth	Qty	Wt			Qty	Wt			Qty	Wt
CF-200	\$23 90	200-300*	14	17 1/4	3	84	0401	\$7 20	3	18	7344	\$16 70	3	66
F-200	24 30	200-300*	14	35 1/4	3	87	0481	7 60	3	21	7344	16 70	3	66

*Medium base 6" light-center lamp.

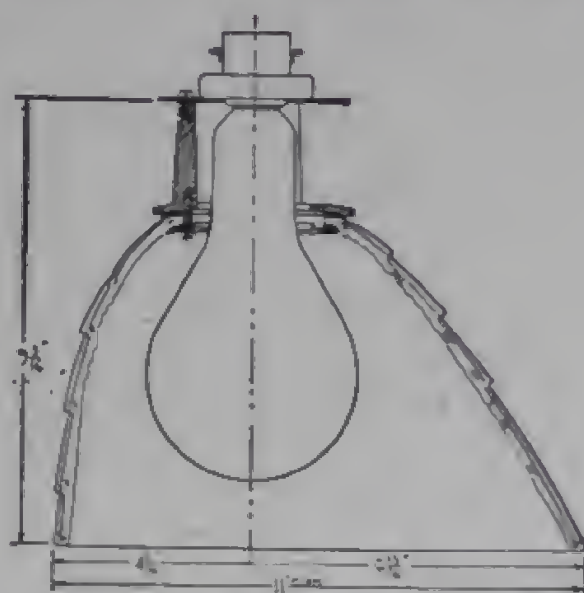
For additional length rod hangers, add \$0.70 per foot, or fraction thereof.

†R The Holophane Company Limited.

HOLOPHANE SHOW WINDOW REFLECTORS



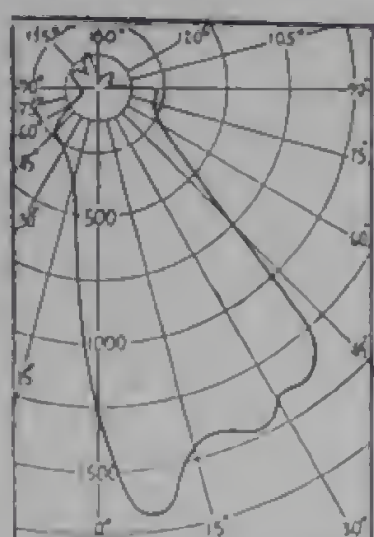
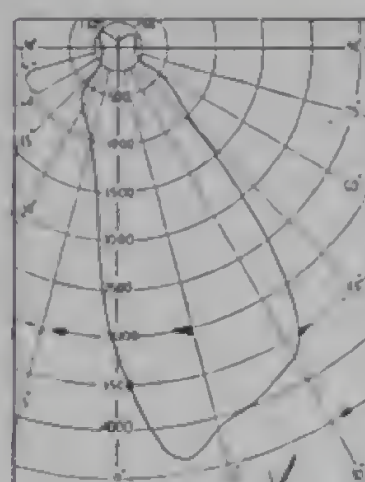
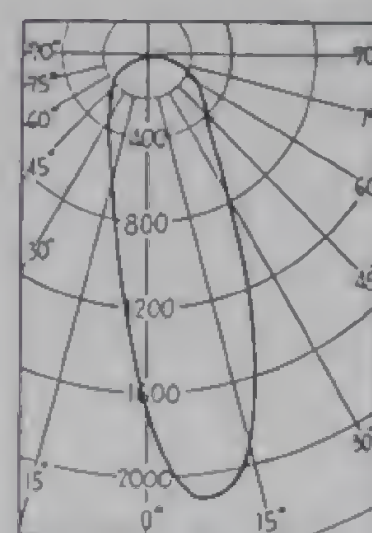
No. 983



Section No. 915



No. 940 with No. 0205 Finishing Ring

Distribution Curve
No. 983 150 WattsDistribution Curve
No. 915 300 WattsDistribution Curve
No. 940 150 Watts

Modern merchandisers know that the display must be well lighted if a show window is to attract the attention desired. This means high lighting levels, correct colour value and proper distribution of the light.

Holophane incandescent show window reflectors produce these desired effects. They have the highest efficiency, which means that high illumination levels can be obtained; the crystal prismatic reflectors do not change the colour of the light from the lamp—the colour of light from the incandescent lamp gives true overall appearance to merchandise; the light control from this line of reflectors is exact, which means the light is properly distributed over the display and within the window area.

The Holophane line of show-window reflectors is summarized as follows:

1. No. 983 is for surface mounting only. It is best used in small or medium-sized average-depth windows. No. 983 may be spaced on centres between

12" and 18" apart. With 150 watt lamps use a type "H" 2 $\frac{1}{4}$ " holder. 100 watt lamps can be used with the same holder by inserting a 1 $\frac{3}{8}$ " socket extension; otherwise, use a form "O" 2 $\frac{1}{4}$ " holder. Holders and socket accessories are not furnished by the Holophane Company.

2. No. 940 is for recessed or surface mounting. It has a highly concentrating beam for shallow-depth and fairly high windows. Minimum spacing is 12 $\frac{5}{8}$ ". Used with 2 $\frac{1}{4}$ " holder. The finishing ring, No. 0205, and plaster ring, No. 0201, must be purchased separately.

3. No. 915 is adaptable to either recessed or surface mounting. Its best application is in medium-sized average-depth windows. The closest spacing for the surface mounted unit is 11". The unit is complete with fitter No. 0945, for 4" outlet box mounting. When used in the recessed form, these reflectors may be spaced on minimum centres of 13 $\frac{3}{4}$ ". The finishing ring No. 0701 and plaster ring No. 0700 must be purchased separately.

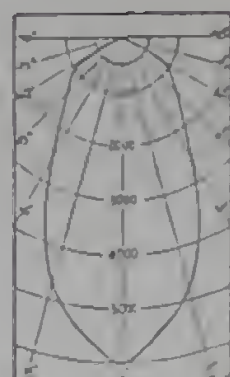
REFLECTOR ONLY							PLASTER RING				FINISHING RING			
Cat. No.	Price Each	Lamp Watts	Dimen (In.)		Std Pkg		Cat. No.	Price Each	Std Pkg		Cat. No.	Price Each	Std Pkg	
			Diam	Depth	Qty	Wt			Qty	Wt			Qty	Wt
983*	\$ 3.90	100†-150	10 $\frac{3}{4}$	6 $\frac{1}{2}$	8	24								
940*	5.20	150	12	7	8	40	0201	\$1.80	8	16	0205	\$3.15	8	16
915	11.30	200-300‡	11	9 $\frac{1}{4}$	8	72	0700	3.65	8	16	0701	2.30	8	16

*Does not include socket.

†Use $\frac{3}{8}$ " socket extension with 100 w. lamp.

‡Medium base 6" light-center lamp.

HOLOPHANE LOBAY REFLECTORS



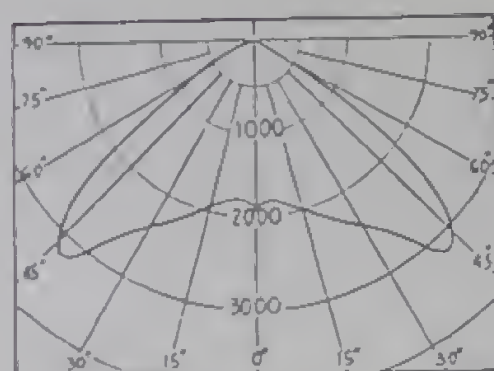
Distribution Curve
No. 686 500 Watts



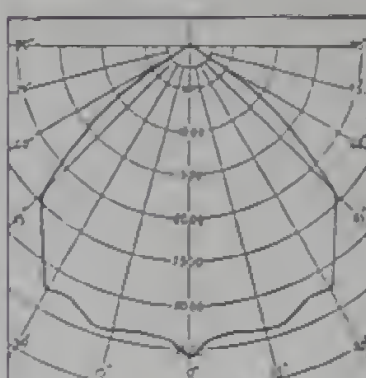
Typical Lobay Reflector



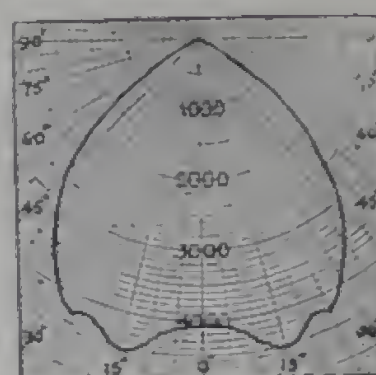
Distribution Curve
No. 686-B 750 Watts



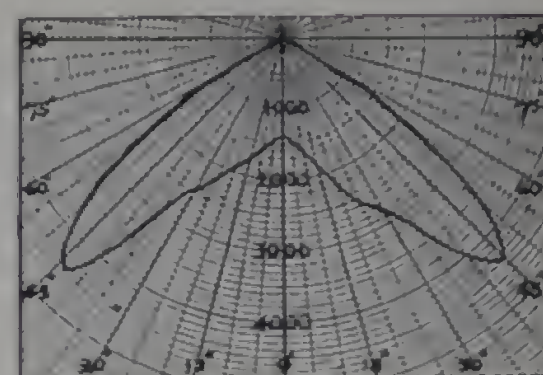
Distribution Curve
No. 682 500 Watts



Distribution Curve
No. 685 500 Watts



Distribution Curve
No. 685-B 750 Watts



Distribution Curve
No. 682-B 750 Watts

Holophane Lobay units feature the choice of three reflectors with focusing, intensive and extensive distributions. The housings are identical and the reflectors may be interchanged (except 684), or covers added, at any time without disconnecting the fixtures. These units provide the advantage of light transmission to the ceiling, which improves the appearance of the interior.

FOR USE WITH SCREW BASE LAMPS

Construction

The reflector is supported at the bottom in a holding ring and clamped up against the fitter by means of three threaded rods and nuts. Reflector has a 30° shielding angle, effectively preventing glare.

Spacing

No. 684 and 685 should not be spaced more than 1½ times the mounting height; No. 686 no more than 0.75 times the mounting height; No. 682 no more than 2 times the mounting height.

FOR USE WITH 750 W BI-POST LAMP

No. 682-B is used for low bay locations where a wide-spread, even light distribution is desired. No. 685-B is recommended for low bay locations where mounting heights are greater or where extra high footcandle values are required. No. 686-B is designed for higher-than-average low bay mounting heights, and where a concentrated light is necessary for detail work.

Construction

The prismatic glass reflector is securely held in position by a tripod support. A simple hinge action allows easy removal of the reflector for cleaning. Open bi-post socket construction permits free ventilation. Reflector has a 30° shielding angle, effectively eliminating glare.

Spacing

No. 682-B not greater than 2 times the mounting height. No. 685-B not greater than 1½ times the mounting height. No. 686-B not greater than 0.75 times the mounting height.

COMPLETE UNIT							FIXTURE ONLY				GLASSWARE ONLY			
Cat. No.	Price Each	Lamp Watts	Dimen (In.)		Std Pkg		Cat. No.	Price Each	Std Pkg		Cat. No.	Price Each	Std Pkg	
			Diam	Depth	Qty	Wt			Qty	Wt			Qty	Wt
FOR SCREW BASE LAMPS														
684	\$11.20	200-300†	11 ⁷ / ₈	11 ¹ / ₂	8	46	0681	\$6.10	8	16	6584	\$5.10	8	30
682	13.50	300-500	13 ¹³ / ₁₆	12 ³ / ₈	4	47	0685	7.20	4	15	6582	6.30	4	32
685	13.50	300-500	13 ¹³ / ₁₆	12 ³ / ₈	4	47	0685	7.20	4	15	6585	6.30	4	32
686	13.50	300-500	13 ¹³ / ₁₆	12 ³ / ₈	4	47	0685	7.20	4	15	6586	6.30	4	32
FOR 750 WATT BI-POST LAMP														
682-B	\$17.50	750 Bi-post	13 ¹³ / ₁₆	12 ³ / ₈	4	46	0685-B	\$11.20	4	14	6582	\$6.30	4	32
685-B	17.50	750 Bi-post	13 ¹³ / ₁₆	12 ³ / ₈	4	46	0685-B	11.20	4	14	6585	6.30	4	32
686-B	17.50	750 Bi-post	13 ¹³ / ₁₆	12 ³ / ₈	4	46	0685-B	11.20	4	14	6586	6.30	4	32

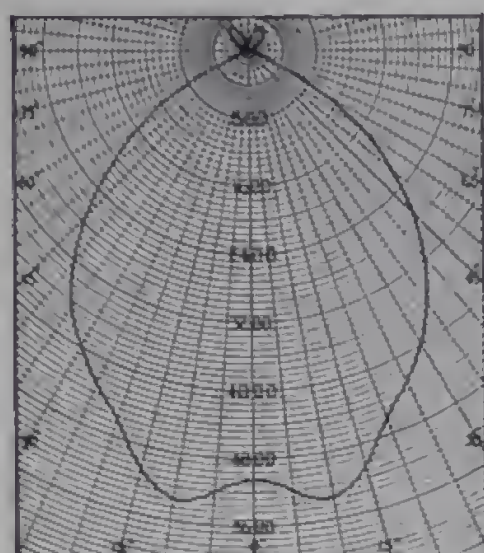
Available with aluminum cover at extra cost. Add suffix "AL" to catalogue number.
†Medium base 6" light-center lamp.

HOLOPHANE LOBAY REFLECTORS

FOR USE WITH 400 W MERCURY LAMP



No. 645



Distribution Curve
No. 645

This unit is logically applied where higher light intensities are required and where the available wattage is limited. Especially recommended for lighting in the metal and aircraft industries.

A 30° shielding angle plus the deep reflector construction which keeps the elongated mercury lamp high in the reflector eliminates glare at all normal angles of view.

For ordinary conditions of general illumination this unit will produce approximately 20 footcandles per watt per square foot of floor area. Space units not greater than 1¼ times the mounting height.

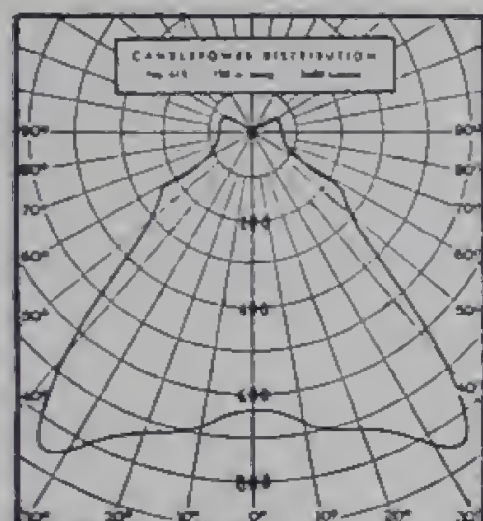
COMPLETE UNIT							FIXTURE ONLY				GLASSWARE ONLY			
Cat. No.	Price Each	Lamp Watts	Dimen (In.)		Std Pkg		Cat. No.	Price Each	Std Pkg		Cat. No.	Price Each	Std Pkg	
			Diam	Depth	Qty	Wt			Qty	Wt			Qty	Wt
645	\$20.20	400 Merc.	13 ¹³ / ₁₆	15 ⁵ / ₈	3	42	0645	\$11.60	3	12	6645	\$8.60	3	30

Available with aluminum cover at extra cost. Add suffix "AL" to catalogue number.

HOLOPHANE ONE-POINT-FIVE LOBAY REFLECTORS



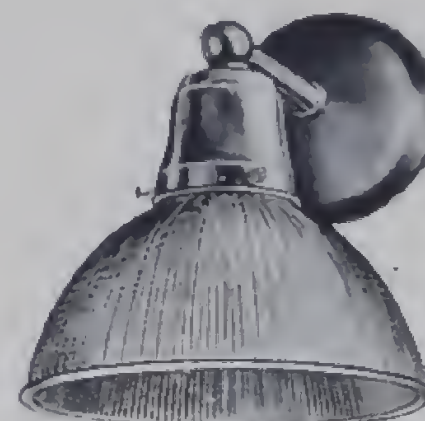
Nos. 606, 615 or 620



Distribution Curve
No. 615 150 Watts



Nos. 606-BC, 615-BC, or 620 BC



Nos. B-606 or B-615

These low cost units are designed to provide adequate, even illumination on spacings as great as 1½ times the mounting height above the work. Units are designed with a shielding angle of 25° to effectively eliminate glare. Economical to install and operate. Three sizes are available to accommodate lamps ranging from 25 to 300 watts.

Fixture parts are made of heavy gauge steel.

Reflectors are of heavy pressed prismatic glass with reinforcing flange at bottom edge.

No. 606, 615 and 620 are tapped for ½ inch conduit. No. 606-BC, 615-BC and 620-BC are for mounting directly on 3¼ inch or 4 inch outlet box. No. B-606 and B-615 are wall bracket types. They terminate in a ⅜" female hickey for direct attachment to outlet box.

COMPLETE UNIT							FIXTURE ONLY				GLASSWARE ONLY			
Cat. No.	Price Each	Lamp Watts	Dimen (In.)		Std Pkg		Cat. No.	Price Each	Std Pkg		Cat. No.	Price Each	Std Pkg	
			Diam	Depth	Qty	Wt			Qty	Wt			Qty	Wt
606	\$ 5.30	25-40-60	7	6 ³ / ₈	10	30	0652	\$2.65	10	10	6506	\$2.65	10	20
615	7.40	100†-150	10	10	8	56	0655	4.40	8	10	6515	3.00	8	46
620	10.00	200-300†	12	11 ¹ / ₄	8	72	0655	4.40	8	10	6520	5.60	8	62
606-BC	6.30	25-40-60	7	5 ³ / ₈	10	30	0653	3.65	10	10	6506	2.65	10	20
615-BC	8.40	100†-150	10	9 ¹ / ₄	8	56	0656	5.40	8	10	6515	3.00	8	46
620-BC	11.00	200-300†	12	10 ¹ / ₂	8	72	0656	5.40	8	10	6520	5.60	8	62
B-606	6.80	25-40-60	7	7	12	96	0571B	4.15	12	72	6506	2.65	12	24
B-615	9.20	100†-150	10	10 ¹ / ₂	8	64	0572B	6.20	8	18	6515	3.00	8	46

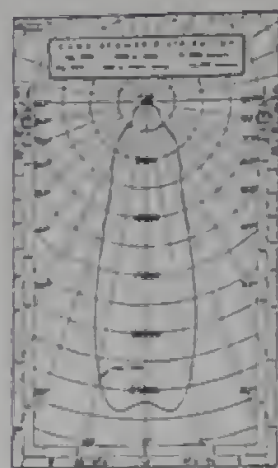
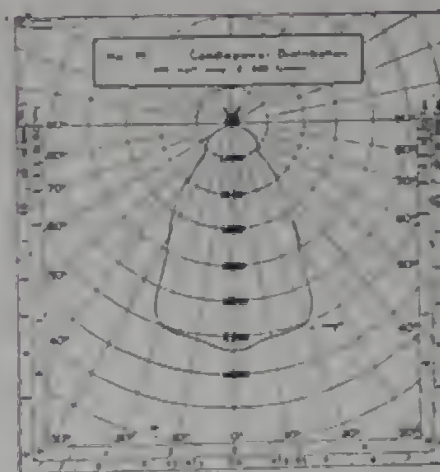
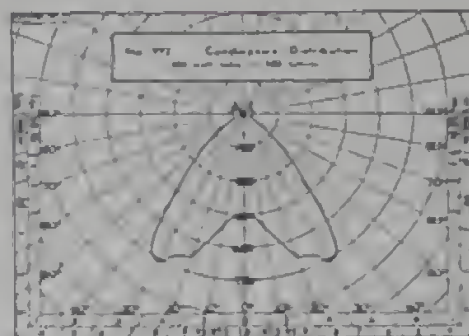
†Medium base 6" light-center lamp.

‡Use ⅜" socket extension for 100 w. lamp.

HOLOPHANE HIBAY REFLECTORS



Typical Hibay Reflector

Distribution Curve
No. 690 1000 WattsDistribution Curve
No. 691 1000 Watts

Distribution Curve No. 692 1000 Watts



Canelite No. 694

Where lighting units are mounted at great heights—such as are found in heavy industry, turbine rooms, etc.—the use of intensive and concentrating light distribution is a necessity; otherwise, a large portion of the light will be wasted on the upper side walls or intercepted by the mass of the machinery itself.

Holophane Hibay Units are designed specifically for this application, both from the standpoint of the illumination results and the mechanical ruggedness required. Some of their advantages are:

1. Three highly efficient prismatic reflectors from which to choose the distribution which gives the greatest usable illumination for any given room proportion.
2. Adjustments in lamp positions in each make it possible to obtain intermediate settings between standard distributions.
3. Corrosive atmospheres will not permanently affect glass-reflecting surfaces.

Spacing

No. 690 not to exceed 0.6 times the mounting height. No. 691 not to exceed 1.0 times the mounting height. No. 692 not to exceed 1.75 times the mounting height.

HOLOPHANE CRANELITE

Holophane Engineers have designed an efficient, rugged lighting unit which will withstand the whip and vibration produced by the crane movements and at the same time provide a concentrating distribution.

Construction

Three compound double action steel springs absorb shock up and down as well as sideways. These springs are adjustable for tension. The Canelite is fastened to the crane by a $10\frac{1}{4}$ inch diameter, $\frac{1}{2}$ inch thick plate. Wide flange construction assures solid contact with the crane. The socket is provided with a $\frac{3}{4}$ inch female pipe thread for wiring.

The Canelite is supplied with a locked-on aluminum cover to prevent any light being directed upward to the operator's eyes.

Installation

Space units 20' apart across the crane. The Canelite when installed under the catwalk is relamped by raising a section of the catwalk. When mounted on the edge of the catwalk it is swung up for relamping by using an angle section attached to the catwalk.

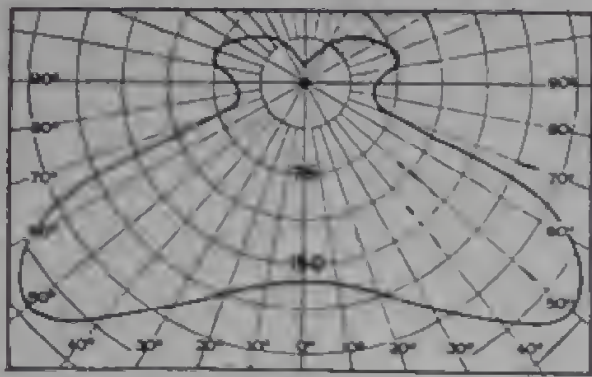
COMPLETE UNIT							FIXTURE ONLY				GLASSWARE ONLY			
Cat. No.	Price Each	Lamp Watts	Dimen (In.)		Std Pkg		Cat. No.	Price Each	Std Pkg		Cat. No.	Price Each	Std Pkg	
			Diam	Depth	Qty	Wt			Qty	Wt			Qty	Wt
690*	\$39.60	750-1000	22	26 $\frac{5}{8}$	3	145	0675	\$15.90	3	20	6690	\$23.70	3	125
691*	39.60	750-1000	19 $\frac{3}{4}$	27	4	120	0674	15.90	4	28	6691	23.70	4	92
692*	39.60	750-1000	19 $\frac{3}{4}$	27 $\frac{3}{8}$	3	100	0674E	15.90	3	20	6692	23.70	3	80
694	79.60	750†-1000†	22 $\frac{5}{8}$	21	1	56	0679	47.90	1	19	6690AL	31.70	1	37

*These units are suitable for 1500 w. lamp when equipped with locked-on aluminum cover at extra cost. Add suffix "AL" to catalogue number.
†Socket for 750 and 1000 w. bi-post lamp available at \$1.85 extra. Add suffix "B" to catalogue number.

HOLOPHANE VAPOUR-TIGHT UNITS



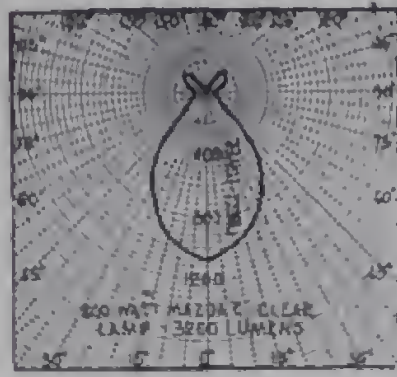
No. 02328



Distribution Curve
Nos. 02328 or 02368 150 Watts



Nos. 02368 or 02378



Distribution Curve
No. 02338 200 Watts



No. 02338

These units are essential for lighting high humidity areas in acid plants, artificial leather factories, boatbuilding plants, breweries, dye manufacturing, paint and varnish plants, rayon plants and similar industries.

Construction

The cast metal threaded fitter is accurately machined, and tapped for $\frac{1}{2}$ " conduit. A heavy,

durable gasket ensures vapour-tight fit. The upper part of the globe reflects the light to the lower member which diffuses and distributes it effectively over the work area.

Spacing

No. 02328 not greater than $2\frac{1}{4}$ times the mounting height. No. 02368 and 02378 not greater than 2 times the mounting height. No. 02338 not greater than the mounting height.

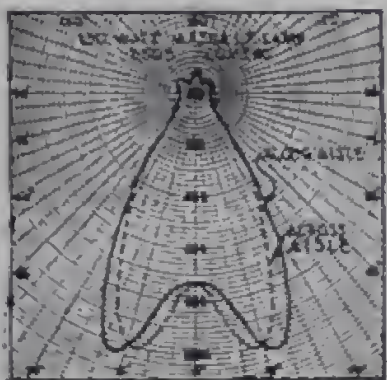
COMPLETE UNIT							FIXTURE ONLY				GLASSWARE ONLY			
Cat. No.	Price Each	Lamp Watts	Dimen (In.)		Std Pkg		Cat. No.	Price Each	Std Pkg		Cat. No.	Price Each	Std Pkg	
			Diam	Depth	Qty	Wt			Qty	Wt			Qty	Wt
02328	\$12.60	100†-150	8 $\frac{5}{8}$	10 $\frac{3}{4}$	8	63	0232	\$5.40	8	20	2328	\$ 7.20	8	43
02368	15.30	100†-150	10 $\frac{1}{2}$	11 $\frac{1}{2}$	8	90	0240	7.00	8	18	2368	8.30	8	72
02378	23.40	200	12	12 $\frac{7}{8}$	4	66	0250	9.00	4	14	2378	14.40	4	52
02338	18.50	200	10 $\frac{1}{2}$	12 $\frac{3}{8}$	4	62	0233	6.80	4	10	2338	11.70	4	52

†Use $\frac{3}{8}$ " socket extension for 100 w. lamp.

HOLOPHANE ASYMMETRIC UNITS



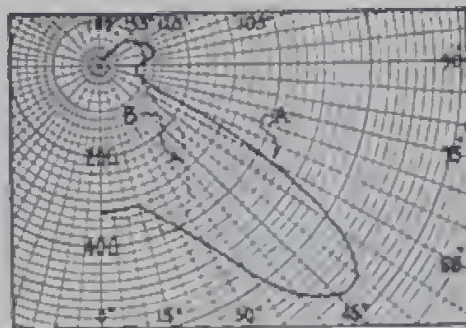
No. H-2076-S



Distribution Curve
No. H-2076-S 150 Watts



No. 02076



Distribution Curve
No. C-2172 150 Watts
A—Along length of Corridor
B—Across width of Corridor



No. C-2172

Bookstack and Stock Bin Lighting

No. 02076 has an asymmetrical distribution in which the major portion of the light travels to the vertical surface of the bookstacks. Supplied with clamping fitter for attaching to grooved porcelain socket. No. H-2076-S is designed for lighting stock bins. Fixture is tapped for $\frac{1}{2}$ inch conduit.

Do not space units greater than distance from

light to bottom of bookstack or stock bin.

Corridor Lighting

No. C-2172 has an asymmetrical distribution in which the light is widely spread along the length of the corridor.

Units may be spaced as far apart as $2\frac{1}{2}$ times the mounting height above the floor.

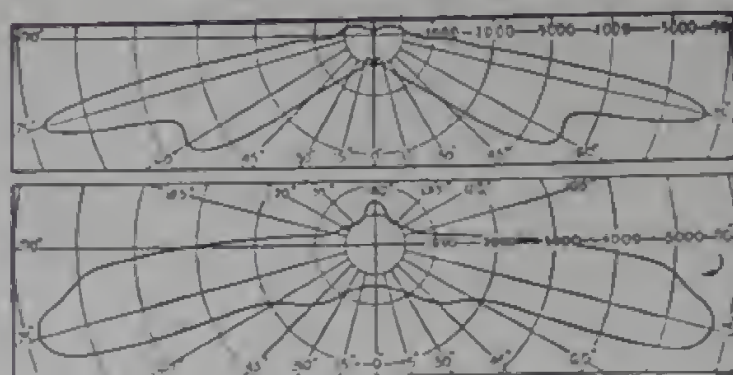
COMPLETE UNIT							FIXTURE ONLY				GLASSWARE ONLY			
Cat. No.	Price Each	Lamp Watts	Dimen (In.)		Std Pkg		Cat. No.	Price Each	Std Pkg		Cat. No.	Price Each	Std Pkg	
			Diam	Depth	Qty	Wt			Qty	Wt			Qty	Wt
02076*	\$ 7.75	50-60	8 $\frac{3}{4}$	6 $\frac{5}{8}$	8	45	0365	\$2.35	8	7	2076	\$5.40	8	38
H-2076-S	9.80	100†-150	8 $\frac{3}{4}$	10 $\frac{3}{8}$	8	50	0660	4.40	8	12	2076	5.40	8	38
C-2172	13.50	100†-150	9 $\frac{7}{8}$	12	8	75	0396	6.30	8	20	2172	7.20	8	55

*No socket furnished. †Use $\frac{3}{8}$ " socket extension for 100 w. lamp.

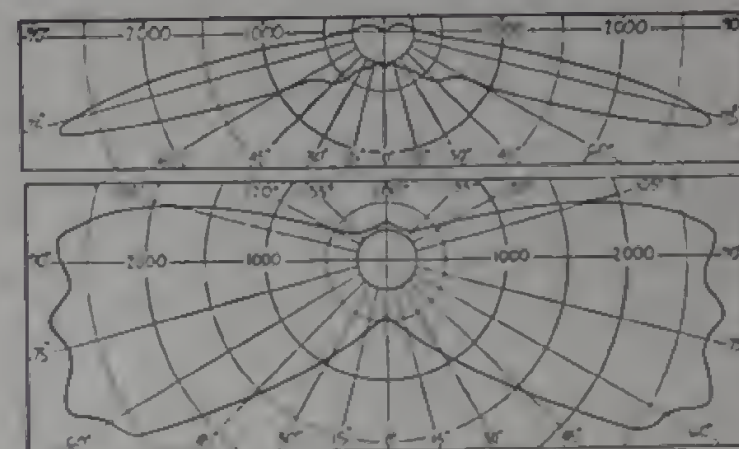
HOLOPHANE YARD AND FENCE LIGHTING UNITS



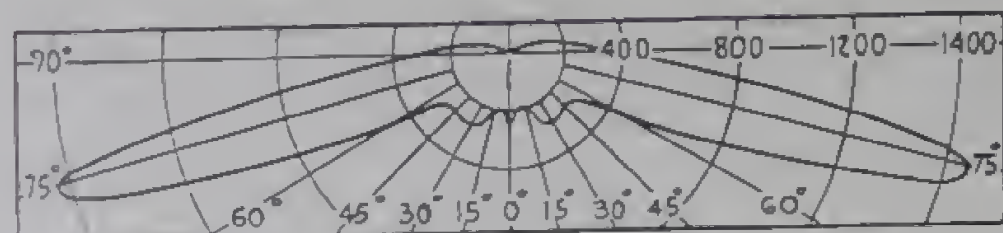
Nos. 04333, 04179,
04377 or 04338



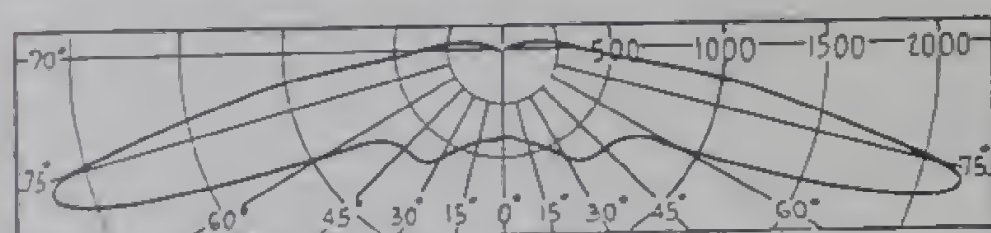
Distribution Curve
No. 04179 500 Watts
Top—Vertical Distribution
Lower—Horizontal Distribution



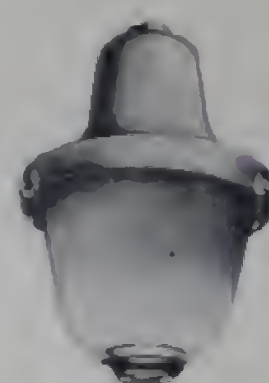
Distribution Curve
No. 04377 300 Watts
Top—Vertical Distribution
Lower—Horizontal Distribution



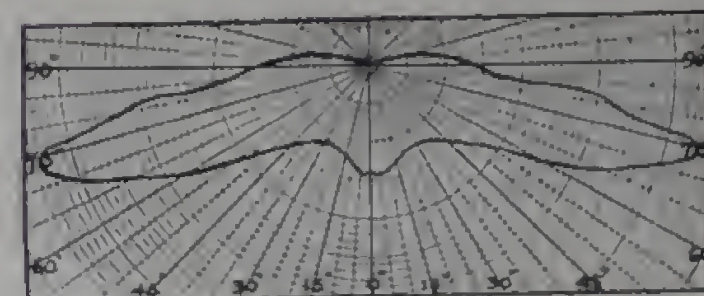
Distribution Curve No. 04338 300 Watts



Distribution Curve No. 04333 500 Watts



Nos. 830 or 832



Distribution Curve
No. 832 200 Watts



No. 0918

HEAVY DUTY REFRACTOR UNITS

Holophane symmetric and asymmetric wide-spread refractor units are designed to light industrial yards for protection against theft, and for production and storage purposes.

No. 04338 and 04333 symmetric units collect the light from the lamp and spread it out at wide angles. Spacings as great as 12 times the mounting height can be used.

Some locations are more effectively lighted with units having an asymmetric distribution. For example, long passageways between buildings are best lighted by refractors having a fan-shaped distribution. No. 04377 and 04179 effectively provide such a distribution.

Construction

The weatherproof cast aluminum fixture, coupled with the heavy duty refractor, makes a lighting unit of unusual durability. The inner and outer

surfaces of the two-piece refractor are smooth, allowing easy cleaning. Top of fixture is tapped $1\frac{1}{2}$ inch female thread.

SMALL REFRACTOR UNITS

No. 830 and 832 symmetric units are useful where the area to be lighted is limited, such as over doorways, in small parking areas, underpasses, warehouses, etc. Spacing up to 6 times the mounting height is allowable.

Construction

Refractor is of two piece construction, smooth inside and out. Fixture is tapped for $\frac{1}{2}$ inch conduit.

No. 0918 Bracket

This is a close fitting outdoor type bracket terminating at the wall end in a canopy to cover a $3\frac{1}{4}$ " box. The fixture end has a standard $\frac{1}{2}$ " pipe thread.

COMPLETE UNIT							FIXTURE ONLY				GLASSWARE ONLY			
Cat. No.	Price Each	Lamp Watts	Dimen (In.)		Std Pkg		Cat. No.	Price Each	Std Pkg		Cat. No.	Price Each	Std Pkg	
			Diam	Depth	Qty	Wt			Qty	Wt			Qty	Wt
830	\$12.70	100†-150	8	10 $\frac{5}{8}$	8	49	0891	\$ 6.35	8	22	4337	\$ 6.35	8	27
832	14.40	200	9	12	8	58	0890	7.20	8	18	4334	7.20	8	40
04338	33.30	300*	12 $\frac{7}{8}$	13 $\frac{1}{4}$	4	69	0881A	23.40	4	33	4338	9.90	4	36
04377	35.10	300*	12 $\frac{7}{8}$	13 $\frac{1}{4}$	4	69	0881A	23.40	4	33	4377	11.70	4	36
04333	44.00	500	16 $\frac{1}{4}$	16 $\frac{1}{4}$	4	125	0882A	29.30	4	45	4333	14.70	4	80
04179	48.80	500	16 $\frac{1}{4}$	17 $\frac{3}{8}$	4	133	0882A	29.30	4	45	4179	19.50	4	88
0918	4.00	Bracket—6" span			4	24								

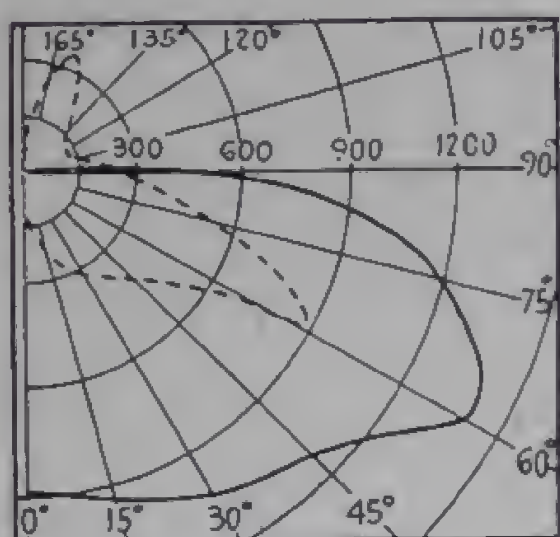
† Use $\frac{3}{8}$ " socket extension for 100 w. lamp.

* Medium base 6" light-center lamp.

HOLOPHANE WIDESPREAD REFRACTOLENS



No. U-818

Distribution Curve
No. U-818 200 Watts

Cat. No.	Price Each	Lamp Watts	Dimensions (In.)		Net Wt Ea	Std Pkg	
			Diam	Depth		Qty	Wt
U-818	\$63.00	200	16	6 $\frac{3}{4}$	21	1	26

There has always existed a demand for an outdoor lighting unit which could be: (1) recessed in a wall or placed flat against it, (2) would spread the light outward at a wide angle in a fan-shaped pattern. The uses for such a unit include parking yards, entrances, shipping platforms, underpasses.

Construction

The unit has a round cast aluminum housing which may be mounted against a wall or recessed to a depth of 3 $\frac{1}{2}$ inches. A cast door on the outer face carries a curved Refractolens consisting of an inner and outer prismatic lens, nested together. The prisms are between the two pieces and protected by a dust-tight seal. Three captive bolts hold the door tightly against the gaskets of the housing and make the unit weather-proof and bug-tight.

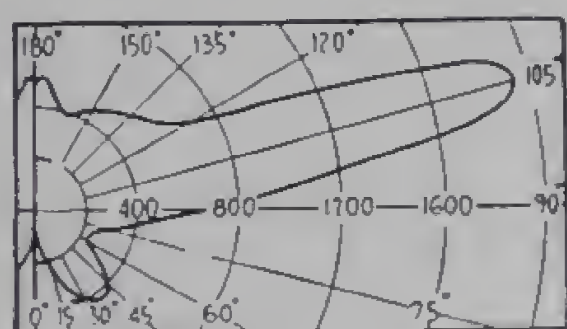
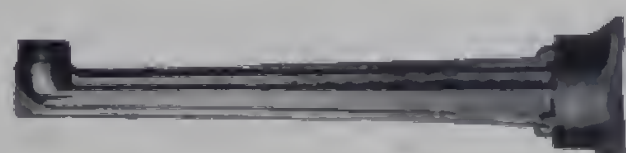
Spacing

Uniform illumination is obtained at maximum spacing of 4 times the mounting height.

HOLOPHANE OUTDOOR SUB-STATION LIGHTING UNITS



No. 043386

Distribution Curve
No. 043386 500 Watts

No. 0871 Bracket

this application. Its upward spread of light is sufficiently broad so that units can be arranged to supplement each other. No. 043386 provides symmetric distribution, and 043776 asymmetric distribution.

Construction

The improved gasketed construction of the two-piece Holophane Refractor and the fixture parts ensures low permanent depreciation. By loosening a lock nut the entire unit may be rotated about its axis while burning and the angle of maximum candle-power can be made to coincide with the disconnect switches. The fixture body holds a diffusing element designed to distribute the downward light evenly over the ground.

No. 0871 Bracket is made of cast iron, hot dipped galvanized. Equipped with a 4" diameter box having four flanged supports drilled to pass $\frac{3}{8}$ " bolts.

The safe and efficient operation of an outdoor sub-station requires that the disconnect switches and other important apparatus be well lighted. The Holophane sub-station unit is ideally suited for

COMPLETE UNIT							FIXTURE ONLY				GLASSWARE ONLY				
Cat. No.	Price Each	Lamp Watts	Dimen (In.)		Std Pkg		Cat. No.	Price Each	Std Pkg		Cat. No.	Price Each	Part	Std Pkg	
			Diam	Depth	Qty	Wt			Qty	Wt				Qty	Wt
043386	\$57.60	300-500	14 $\frac{3}{4}$	19 $\frac{3}{4}$	4	112	0946	\$32.40	4	40	4338	\$ 9.90	Refractor	4	36
											7184	5.65	Diffuser	4	..
											1245	9.65	Outer Globe	..	..
043776	59.40	300-500	14 $\frac{3}{4}$	19 $\frac{3}{4}$	4	112	0946	32.40	4	40	4377	11.70	Refractor	4	36
											7184	5.65	Diffuser	4	..
											1245	9.65	Outer Globe	..	..
0871	12.15	Bracket -	21 $\frac{3}{16}$ "	Span	4	60									

CURTIS X-RAY REFLECTORS



X-Ray
MADE IN CANADA
Reflectors

Fifty years of consistent improvement—through research and engineering—have brought X-Ray Reflectors to their present-day high standard of performance. Designed specifically to "put light where you need it," X-Ray Reflectors do so without sacrificing such important factors as eye-comfort, efficiency, durability and ease of installation. These requirements are fundamentals upon which all current styles are based.

X-Ray Reflectors are Tough. X-Ray Reflectors are not made from re-melted glass. They are made with particularly high-grade glass, crystal clear and free from discolorations and imperfections. Consequently, X-Ray Reflectors have diamond brightness and unusually tough texture.

These factors are vital in reflector design because they result in very low absorption and subsequent high reflector efficiency.

Silver Reflecting Surface. The reflecting element applied to the outer surface of the glass of X-Ray Reflectors is *pure silver*. Silver is used because it has the highest reflecting qualities obtainable. Once mirrored, the silver is then completely protected—on the inner side by the glass and by "Golden Armour" on the outer side.

Golden Armoured for Protection. X-Ray Reflectors have a golden finish on the outside. This finish is "Golden Armour." It is not copper, nor copper-like; instead it is a scientific process developed and perfected in Curtis Research Laboratories.

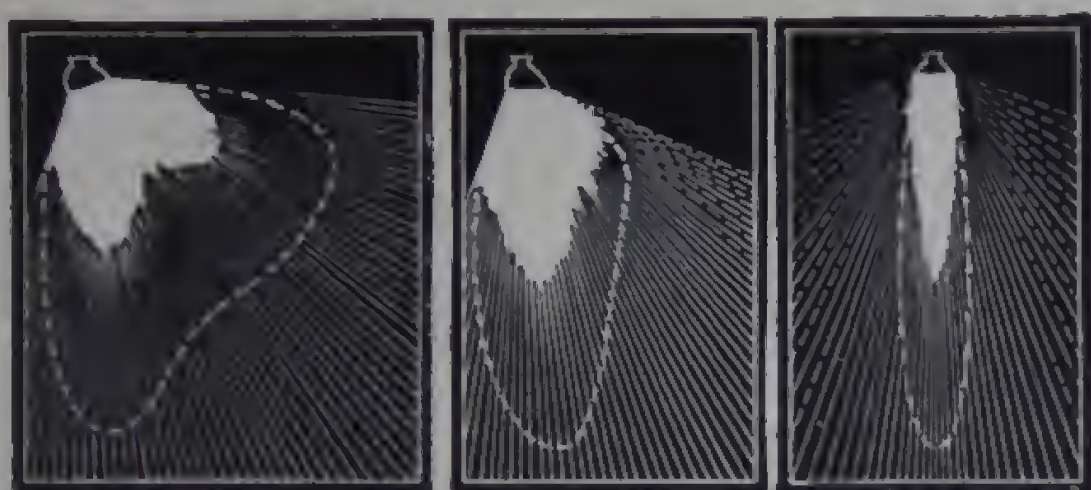
Golden Armour protects the reflector against tarnishing, cracking, blistering or discolouring; it keeps the silver bright, always as good as new.

Thus the loss of efficiency which occurs from deficiencies in other coatings, cannot happen with Golden Armoured X-Ray Reflectors—the silver reflecting surface stays bright: *you get all the light you pay for . . . always.*

Installation. X-Ray Reflectors are built to last years under normal conditions. Their inherent ruggedness ensures dependable, safe equipment with precise light control when installed with the simple, inexpensive fittings designed and listed for various applications.

Each type of X-Ray Reflector is designed with expert accuracy to do a specific job. This design, however, is only accurate when used with the proper lamp and holder as indicated in the following pages.

PLANNING CURTIS SHOW WINDOW LIGHTING



Deep
Windows

Shallow
Windows

Very Shallow
Windows

TYPES OF SHOW WINDOWS

Deep Windows with a high background or trim (depth and height approximately equal) require *distributing* X-Ray Reflectors.

Shallow Windows with low trim or low background (depth about one-half the height) require *semi-concentrating* Reflectors.

Very Shallow Windows where the lower portion should be lighted as brightly as the upper, require *very concentrating* X-Ray Reflectors.

Island Windows (i.e. windows having glass on at least two long sides) are treated as double-shallow windows, back-to-back. *Semi-concentrating* X-Ray Reflectors should be used.

APPLICATION

Selecting the Correct Reflector. From the table at the right, it is easy to determine the proper reflector to use in any show window.

First locate your mounting height in the left column, "Height." In the next column find the depth of your window. Move along this horizontally to the column under "height of background or display" which corresponds to that of your window. The reflector designated in this space is the one to use.

Spacing of Reflectors. Spacing of reflectors is influenced by the brightness of neighbouring windows, street lighting intensity, goods displayed, colour of background, also the merchant's realization of the value of bright, well-lighted windows for advertising and sales value.

The closer reflectors are spaced, the brighter becomes the light in the window. In general, the following center-to-center spacing of reflectors is recommended:

Large cities, downtown	12"
Large cities, suburban	12" to 18"
Small cities	12" to 18"
Towns	15" to 24"

Diagram illustrating the selection of reflectors based on window dimensions and mounting height. The diagram shows a window with a reflector mounted near the front glass. The distance from the front to the back of the window is indicated. The height of the background or display is also shown. The table below provides the recommended reflector number for various combinations of mounting height, window depth, and background height.

Height Feet	Depth Feet	Height of Background or Display							
		1 to 2 Feet	2 to 4 Feet	4 to 6 Feet	6 to 8 Feet	8 to 10 Feet	10 to 12 Feet	12 to 14 Feet	14 to 16 Feet
4	1 to 3	844	310	400					
6	3	310	310	400					
6	4	310	400	400					
6	5	310	400	400					
6	2	844	410	410	400				
8	3 to 5	410	410	400	400				
8	5 to 7	410	410	400	400				
8	7 to 9	410	400	400	400				
8	2 to 4	804	510	510	510	500			
8	4 to 6	510	510	510	500	500			
8	6 to 8	510	510	500	500	500			
10	8 to 10	510	500	500	500	500			
10	10 to 12	510	500	500	500	500			
10	3 to 5	804	510	510	510	500	500		
10	5 to 6	510	510	510	500	500	500		
12	6 to 8	510	510	510	500	500	500		
12	8 to 10	510	510	500	500	500	500		
12	10 to 12	510	500	500	500	500	500		
12	4 to 6	804	510	510	510	510	510	500	
12	6 to 8	510	510	510	510	500	500	500	
14	8 to 10	510	510	510	500	500	500	500	
14	10 to 12	510	510	500	500	500	500	500	
14	12 to 14	510	510	500	500	500	500	500	
14	14 to 16	510	500	500	500	500	500	500	
14	4 to 6	842	842	1010	1010	1010	1010	900	
14	6 to 8	1010	1010	1010	1010	1010	900	900	900
14	8 to 10	1010	1010	1010	1010	900	900	900	900
16	10 to 12	1010	1010	1010	1010	900	900	900	900
16	12 to 14	1010	1010	1010	900	900	900	900	900
16	14 to 16	1010	1010	900	900	900	900	900	900

For "Attraction-Zone" Lighting, use Nos. 420 and 530 instead of Nos. 410 and 510.

Show Window Reflector Selector

"Attraction-Zone" Lighting. In very shallow windows it is desirable to place more light on the lower portion of the display than in the rest of the window. This type of illumination is known as "Attraction-Zone" lighting; for when such an area is brightly lighted, it attracts the attention of the passer-by to the entire display.

INSTALLATION

Methods of Installing Reflectors. The construction of each show window determines the method of mounting reflector equipment. Most show windows have the reflector mounted with either CurtiStrip at the ceiling or from the transom bar—open or concealed behind panels of diffusing glass (usually clear glass with crackled or pebbled surface).

Other windows, requiring a neater, more finished appearance, have the reflectors recessed in plywood or plaster ceilings. This method is adopted where there is sufficient height for the reflector equipment to be concealed and is especially recommended where show windows are enclosed. A finishing flange is used to support the reflectors flush with the bottom of the ceiling.

CURTIS SHOW WINDOW REFLECTORS

ATTRACTION-ZONE TYPE

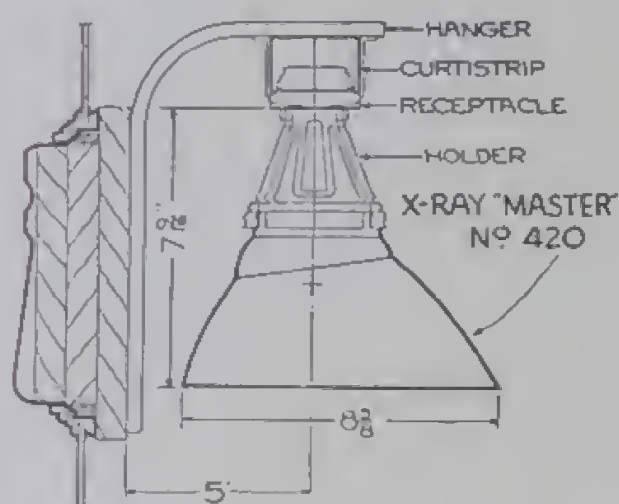


No. 420

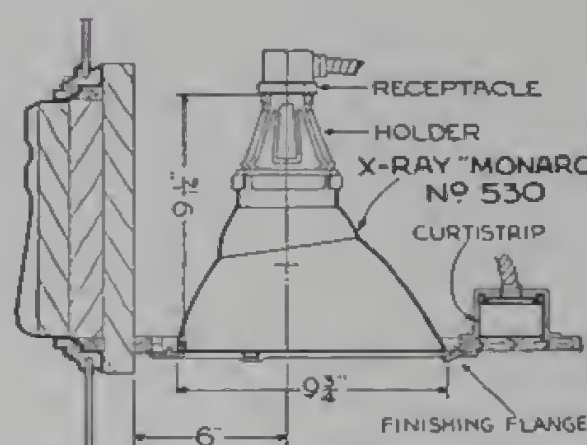
X-Ray
Reflectors



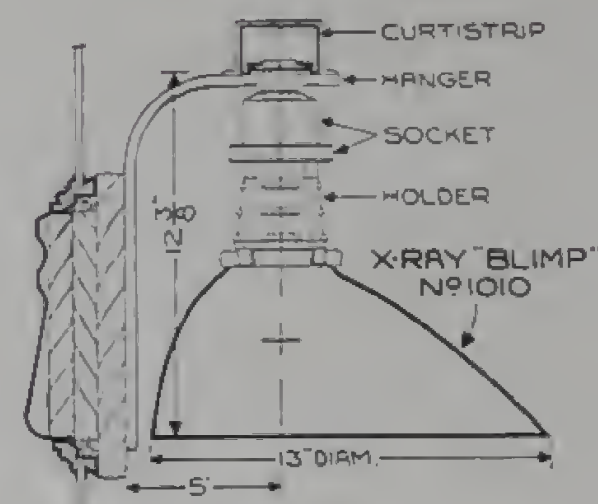
Distribution Curve



Drawing shows No. 420 mounted on CurtiStrip with No. 15 Hanger. For recessing above ceiling use Finishing-Flange No. 10517. (Minimum recessing height $9\frac{1}{8}$ ". Dia. to cut hole $9\frac{1}{4}$ ".)



Drawing shows No. 530 recessed above ceiling of window using No. 14026 Finishing Flange. (Minimum recessing height $10\frac{5}{8}$ ". Dia. to cut hole $10\frac{3}{8}$ ".)



Drawing shows No. 1010 mounted on CurtiStrip using No. 19 fitting. No. 15 Hanger supports CurtiStrip from transom bar.

"Attraction-Zone" X-Ray Reflectors concentrate 35% to 50% more light in the lower portion of the window, thus giving a high-lighting effect which is sure to attract the attention of passers-by. They may be used for general lighting or to supplement general illumination. The added feature of "Attraction-Zone" X-Ray Reflectors is that they furnish high-level lighting at the important sales area. Reflectors have round bottoms for ease in recessing. "Dimples" are a feature in X-Ray Reflectors for readily attaching accessories.

Catalogue numbers 420 and 530 are used for average size windows. No. 1010 is for large shallow windows, or for high intensity "super-lighting."

Uses for No. 1010 "Blimp" besides show window lighting include the following applications—Stage Lighting: Theatres and Large Auditoriums. High Intensity Lighting: Indoor Athletic Tennis and Handball Courts. Churches: Sanctuary and Choir Lighting. Sports Lighting: Boxing and Wrestling Rings.

Cat. No.	Price Each	Lamp Watts	Holder (Included)	Accessories* (Not Included)			Dimen (In)		Std Pkg	
				Flange	Plaster Ring	Louver	Diam	O.A. Hgt	Qty	Wt
420	\$6.15	100-150	Adjustable; for sockets with shadeholder groove.....	10517	14027	12420	$8\frac{5}{8}$	$7\frac{9}{16}$	10	20
530	7.40	150-200-300	Adjustable; for sockets with shadeholder groove.....	14026	14028	12531	$9\frac{3}{4}$	$9\frac{1}{16}$	10	28
1010	16.90	300-500	Special; includes $\frac{1}{2}$ inch mogul socket.....	14110	14111	12110	13	$12\frac{3}{8}$	4	26

*For dimensions and prices, see page 135.

CURTIS SHOW WINDOW REFLECTORS

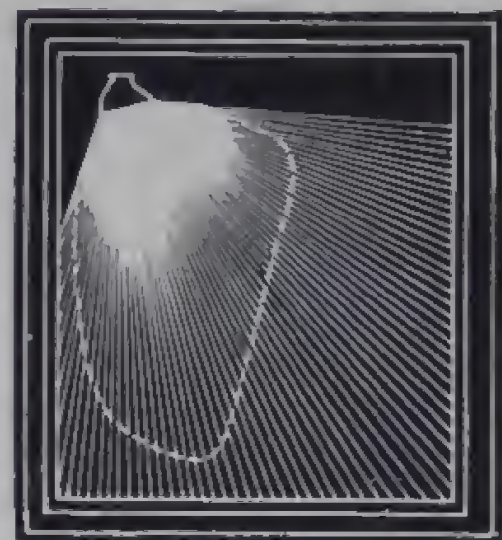
SEMI-CONCENTRATING AND DISTRIBUTING TYPES



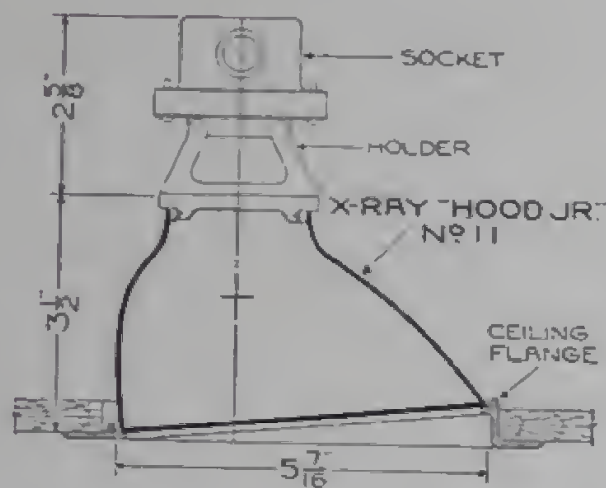
No. 500



Distribution Curve
No. 11

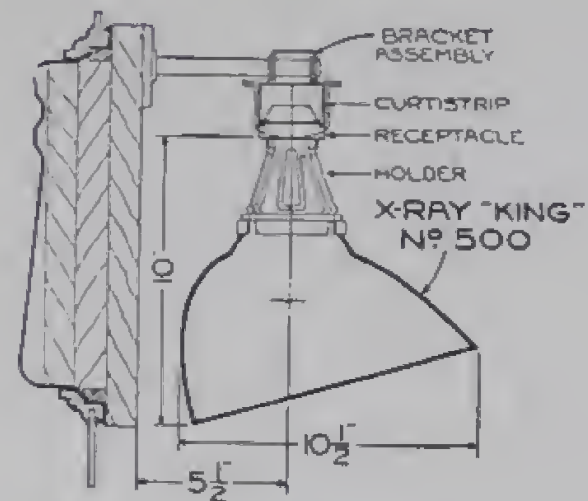


Distribution Curve
No. 500



Dimensions No. 11

X-Ray
Reflectors



Dimensions No. 500

Semi-concentrating Type. This Semi-concentrating X-Ray Reflector should be used in show windows where the mounting height of reflectors is greater than the depth of the windows.

Accurate light control is essential in such areas. It is necessary to provide adequate general illumination yet have a strong punch of light in the downward angle to properly light merchandise on display. Such achievement is exemplified by X-Ray Reflector No. 11.

Distributing Type. This X-Ray Reflector is designed for use in deep windows (those in which the depth of window is approximately equal to the height). Where the trim-line extends high at the back, it is ideal.

As its name implies, the distributing type reflector spreads light over a wide angle. Accurate control provides an abundance of light on the merchandise, thus increasing the sales appeal of the window.

Cat. No.	Price Each	Lamp Watts	Holder	Flange* (Not Included)	Dimensions (Inches)			Std Pkg	
					Width	Depth	Hgt	Qty	Wt
11	\$3.80	{ 25-40 60-75	Not included. Form "O" 2 1/4", No. 12100† Not included. Form "H" 2 1/4", No. 10127†	10394	5	5 7/16	3 1/2	20	15
500	7.40	150-200-300	Included. Adjustable; for sockets with shadeholder groove	11500‡	10	10 1/2	10	10	30

*For dimensions and prices, see page 135.

†For prices see page 151.

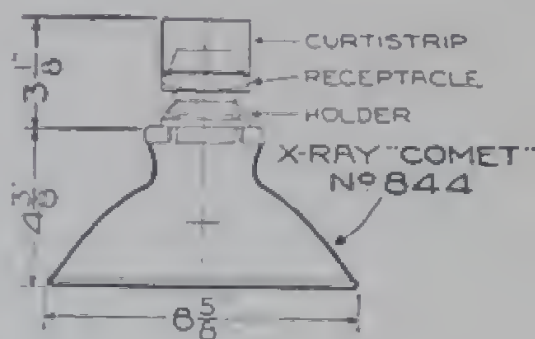
‡Bottom of reflector is on an angle of 17° with horizontal.
Plaster rings and louvers are not available for these reflectors

CURTIS SHOW WINDOW REFLECTORS

CONCENTRATING TYPE

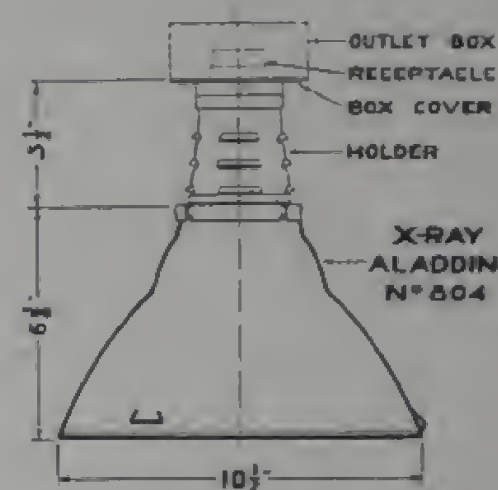


No. 844

Distribution
Curve

Dimensions No. 844

X-Ray
Reflectors



Dimensions No. 804

Concentrating Type. Where a "punch" of light is required on merchandise or eye-work, or where light must be effectively projected from a comparatively high mounting height, concentrating reflectors are used. The size of the reflector is determined by the intensity of illumination needed, also the height of mounting.

X-Ray Reflectors 844 and 804 furnish directional lighting with extreme concentration. Where such control is essential, X-Ray Reflectors are unexcelled.

Application

For emphasizing with light in the store, for pro-

viding high level supplementary lighting in the factory, for high bay mounting and for general spot-lighting, X-Ray concentrating reflectors are recommended.

Other Applications

Show window displays, spotlighting counters and merchandise, directional lighting for art galleries and museums (lighting recessed above skylight).

General illumination for large interiors, night protection lighting, church altar and chancel lighting, dance floors, and all high-lighting and spotlighting applications.

Cat. No.	Price Each	Lamp Watts	Holder† (Not included)	Accessories* (Not included)			Dimen (In)		Std Pkg	
				Flange	Plaster Ring	Louver	Diam	Hgt	Qty	Wt
844	\$5.00	100-150	Form "A" 3 1/4". No. 10300†	10517	14027	12844	8 5/8	4 3/8	12	19
804	8.10	200	X-Ray 3 3/4". No. 10800	10417	14035	Not Avail.	10 1/2	6 3/8	1	5

*For dimensions and prices, see page 135.

†Used only with X-Ray and CurtiStrip sockets. For prices see page 151.

‡Use No. 10300 holder plus No. 10012 holder extension for 150 watt lamp.

LOUVERS FOR CURTIS SHOW WINDOW REFLECTORS



Corner or island type windows often require a means of concealing the lamps and light from reflectors along the adjacent side. X-Ray Louvers are a standardized accessory that can be installed at any time in "dimpled" X-Ray Reflectors.

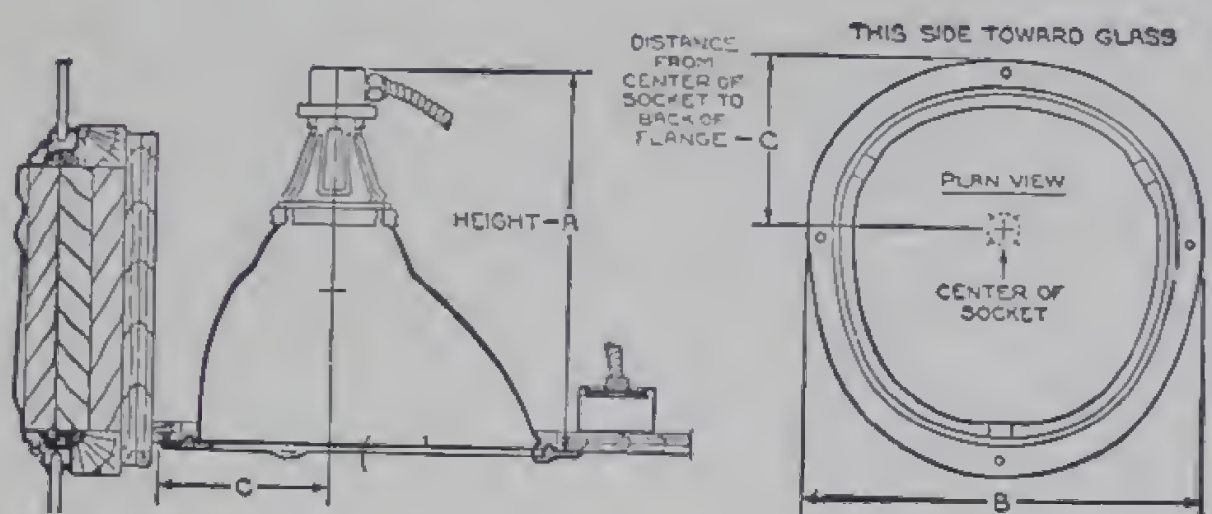
Cat. No.	Price Each	For Use With	Std Pkg	
			Qty	Wt
CONCENTRIC RING TYPE				
12844	\$4.30	No. 844 (with 10517 flange)...	1	1
TYPE "U" LOUVERS, WITH HORSE-SHOE SHAPED FINIS				
12110	\$7.20	No. 1010.....	1	2
12420	4.85	No. 420.....	1	2
12531	5.75	No. 530.....	1	2

HOW TO RECESS CURTIS SHOW WINDOW REFLECTORS



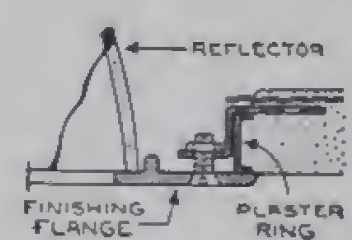
Finishing flanges and plaster-rings are used in recessing X-Ray Reflectors above the show window ceiling. On wood or board ceilings, flanges only are used to finish off the opening and to support the reflector in the proper position. The exposed face of the

flange may be painted at the same time as the ceiling. When recessing is done in plaster ceilings, it is necessary to use a plaster-ring as a ground to plaster up to and also as a base for mounting the finishing flange. See diagram.



Detail showing installation in wood or board ceiling.

Above Left: Side view of reflector recessed with flange only. Above Right: Plan view of flange — use flange for pattern to cut opening.



Detail showing installation in plaster ceiling.

FLANGES							PLASTER RINGS			
Flange Number	Price Each	For Reflector Number	Minimum Dimensions in Inches			Standard Package of Ten Weighs, Pounds	Plaster Ring Number	Price Each	Minimum Spacing Inches	Standard Package of Ten Weighs, Pounds
			"A" Height Including Socket	"B" Spacing	"C" Center of Socket to Street Side of Flange					
10394	\$2.00	11	6 $\frac{1}{8}$	6 $\frac{1}{2}$	2 $\frac{5}{8}$	9			Not available	
10517	1.50	420	9 $\frac{1}{4}$	10 $\frac{5}{8}$	4 $\frac{1}{2}$	10	14027	\$2.25	10 $\frac{5}{8}$	10
11500	3.05	500	11 $\frac{5}{8}$	12	4 $\frac{3}{8}$	22	14028	2.35	11 $\frac{3}{4}$	10
14026	2.35	530	10 $\frac{1}{2}$	11 $\frac{3}{4}$	5 $\frac{7}{8}$	10	14035	2.35	13 $\frac{1}{4}$	10
10417	3.60	804	11	13 $\frac{1}{4}$	6 $\frac{5}{8}$	20				
10417	3.60	810	10	13 $\frac{1}{4}$	6 $\frac{5}{8}$	20	14035	2.35	13 $\frac{1}{4}$	10
10517	1.50	844	7 $\frac{3}{4}$	10 $\frac{5}{8}$	5 $\frac{5}{16}$	10	14027	2.25	10 $\frac{5}{8}$	10
14004	2.45	848	13 $\frac{1}{2}$	15 $\frac{1}{2}$	7 $\frac{3}{4}$	15	14111	3.25	15 $\frac{1}{2}$	15
14110	3.25	1010	13 $\frac{5}{8}$	15 $\frac{1}{2}$	5 $\frac{1}{2}$	15	14111	3.25	15 $\frac{1}{8}$	15

CURTIS INTERIOR FLOODLIGHTS



Concentrating Type Floodlight

Increased stopping and selling power usually result from added light on special features of show window and interior displays. X-Ray Interior Floodlights provide two types of light control:

Concentrating Type, with a very narrow beam for high-lighting, and Semi-concentrating Type that provides wider distribution for large areas.

Cat. No.	Price Each	Lamp Watts	Diam (In)	Depth (In)	Std Pkg		Holder (Included)
					Qty	Wt	
CONCENTRATING TYPE							
44	\$12.45	100-150	8 ³ / ₈	7 ¹ / ₂	1	5	10300
33-B	15.60	200	10 ¹ / ₂	10 ³ / ₄	1	7	10800
SEMI-CONCENTRATING TYPE							
338-B	\$15.60	200	10 ¹ / ₂	9 ³ / ₄	1	7	10377
888-B	17.10	300-500	13 ¹ / ₄	11 ¹ / ₈	1	12	10414

CURTIS DIRECT LIGHTING REFLECTORS

Right: No. 588, typical of distributing type reflectors. Used at medium or low mounting heights it provides excellent light distribution over large areas.



Below: No. 2-588-H1, typical of Combination Mercury-Incandescent Fixtures.



This group of X-Ray Reflectors includes equipment for the efficient general lighting of industrial plants, commercial buildings, sports arenas and the like. The wide range of sizes offered in this group covers the requirements of large and small areas, high and low bays and individual localized applications. General lighting reflectors are essentially of a semi-concentrating or distributing character.

Cat. No.	Price Each	Lamp Size and Description	Style of Holder	Dimen (Ins)	
				Dia	Hgt
DISTRIBUTING TYPE					
3	\$3 00	25-40 Watts 2 1/4" neck 60-75 Watts No holder included	Form O Form H	4 1/2	3 5/8
535	4 68	60-75 Watts 2 1/4" neck 100 Watts No holder included	Form O Form H	5 3/4	5
575*	7 00	200 or 300 Watts Med Base 3 1/4" neck No holder included.	Form A	9 1/8	8
588	15 10	300 or 500 Watts Holder and Socket in- cluded.	Socket tapped 1 1/2"-1 3/8"	11 1/2	14 5/8
589	26 10	750, 1000 or 1500 Watts Holder and Socket in- cluded.	1 1/2" female thread	16	20
595-H1	26 10	400 Watts Mercury	1 1/2" "	16 1/4	19 1/4
2-588-H1	34 20	400 Watts Mercury and 300 or 500 Watts In- cand. Holder and Sockets included.	1 1/2" female thread	11 1/4 Each	14 1/2
595-589-H1	63 00	400 Watts Mercury and 750, 1000 or 1500 Watts Incand. Holder and Sockets included.	1 1/2" male thread	16 1/4 and 16	28

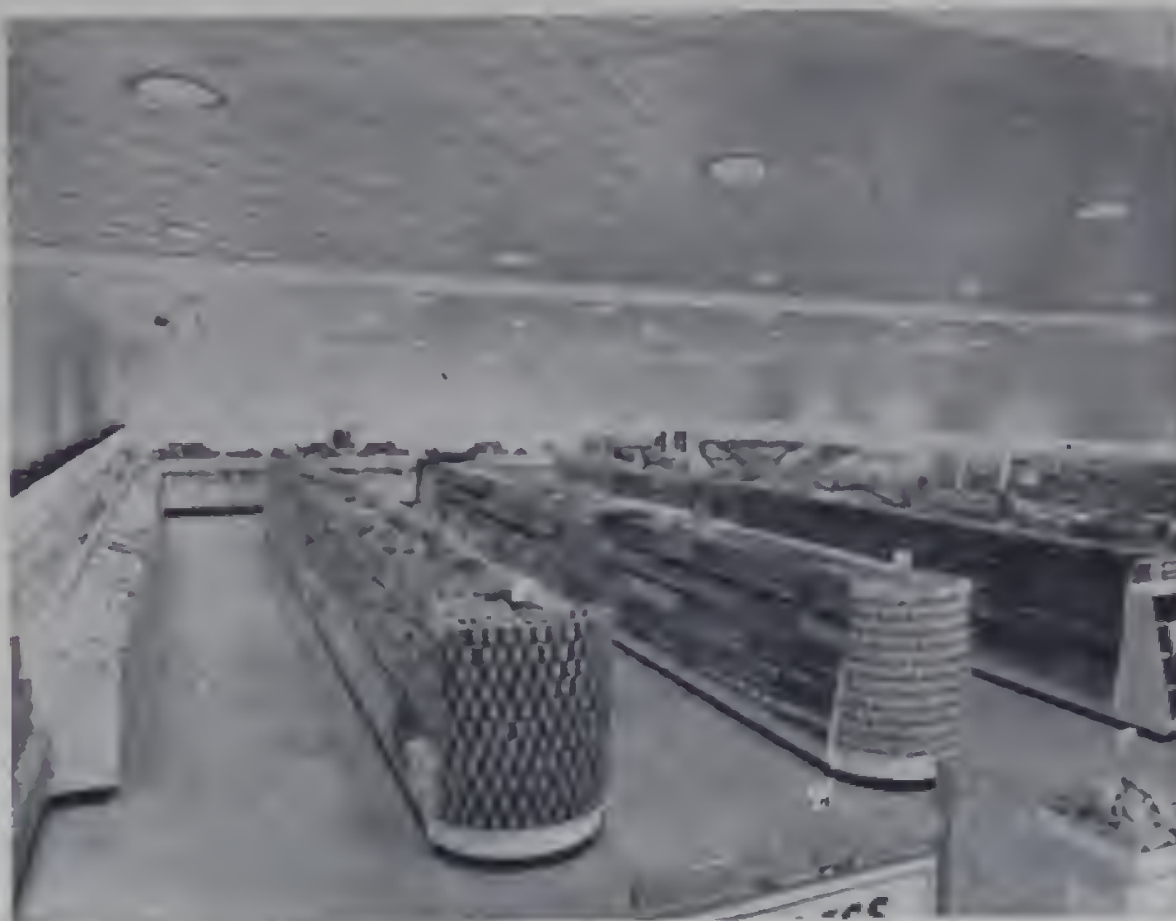
SEMI-CONCENTRATING TYPE					
696	\$5.20	60-75 Watts 2 ¹ / ₄ " neck 100 Watts No holder included.	Form O Form H	8 ³ / ₄	5
810	8.10	200 Watts, 3 ¹ / ₄ " neck No holder included.	X-Ray	10 ¹ / ₂	5 ¹ / ₄
848	13.50	300 or 500 Watts Holder and Socket included.	Socket tapped 1 ¹ / ₂ "-1 ³ / ₈ "	13 ¹ / ₄	12
592-H1	26.10	400 Watts Mercury	1 ¹ / ₂ " female thread	16 ¹ / ₄	19 ¹ / ₄

*For Outlet Box, No. 575-OB (\$9.60 each) includes holder, socket and 4" OB cover. For 1¹/₂" Conduit, No. 575-C (\$9.15 each) includes holder and receptacle with 1¹/₂" female thread.

CURTIS RECESSED LIGHTING EQUIPMENT



Grocery store lighted with two rows of Curtis recessed units. Adequate, comfortable illumination is provided at low initial cost.



High levels of glare-free illumination provided by Curtis recessed units make it a pleasure to shop in this self-serve market.

Curtis recessed units are correctly engineered to produce high levels of illumination with a minimum amount of glare. All units are approved by C.S.A. when installed according to Code requirements.

The higher levels of illumination which research has shown to be necessary for good seeing and effective selling are economically and efficiently secured with Curtis recessed lighting.

Lighting with recessed equipment preserves the clean modern lines of an interior. They may be used alone or to supplement indirect lighting from ceiling fixtures and coves.

MAXIMUM ALLOWABLE SPACING:

(For resultant intensities see table page 139).

For distributing units, when used to produce lighting of fairly uniform intensity, the spacing permitted is $1\frac{1}{2}$ to $1\frac{3}{4}$ times the distance from the working plane to the unit. For example, where No. 588 or No. 575 (distributing) reflectors are to be used and the ceiling height is 12 feet, the distance from the working plane (approximately 3 feet from the floor) will be about 9 feet. The spacing, therefore, may be as much as 15 feet between units.

For semi-concentrating units, when used to produce lighting of fairly uniform intensity, the spacing permitted should not be greater than the distance from the unit to the working plane. For example, where No. 848 or No. 810 (semi-concentrating) reflectors are used and the ceiling height is 12 feet, the distance from the working plane to the unit

will be about 9 feet. The spacing between units, therefore, should not be greater than 9 feet. We recommend the use of semi-concentrating units rather than distributing units wherever the spacing is close enough to permit their use.

Concentrating units, such as those using No. 804 reflector are usually installed over displays and in locations where it is desired to obtain emphasis in lighting; they are rarely used for uniform lighting. Beam coverage is $\frac{1}{3}$ of the distance from the unit to the display. For example, if the unit is 9 feet above the counter, the circle of light in the main beam will be about 3 feet in diameter.

ACCESSORY EQUIPMENT

The information given above applies only to open recessed units with no cover glass or louver. Where these fittings are used, the characteristics of the light distribution will be somewhat modified. See tables page 139.

- (a) Crackled cover glass has little effect on light distribution but serves primarily to shield the lamp and reflector from view. In most cases, crackled glass should be used.
- (b) Sanded cover glass increases the brightness and also the spread of the reflector.
- (c) Louvers are primarily intended to shield the light source but also tend to increase the concentration of the light. When a louver is used, an improved appearance can be obtained through the use of a cover glass mounted above the louver.

CURTIS RECESSED LIGHTING EQUIPMENT



In this cheerful restaurant combined cove lighting and recessed downlighting provide useful light on the tables, as well as an attractive over-all appearance.



Curtis cove lighting and recessed lighting equipment add materially to the quiet restfulness and charm of this office-building lobby.

INSTALLATION SUGGESTIONS

Installation of these various types of equipment may be made in interiors with wood, metal, tile, concrete, acoustic, or plastered ceilings. In the case of plaster ceilings, the use of plaster ground rings simplifies installation and maintenance. Plaster rings are installed before plastering is done and the units placed in position later. Drawings on the following pages show methods of mounting.

PLASTER GROUND RINGS

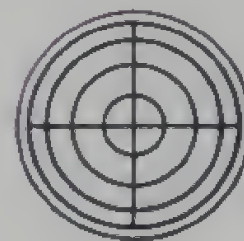
Plaster ground rings are not included in complete unit numbers. Where a plaster ground ring

is required for installation, its catalogue number will be found conveniently listed on the same page as the unit itself under the heading "Plaster Ring."

LOUVERS FOR HOUSED AND UNHOUSED UNITS

Concentric Louvers

Design is simple and striking. Round—available in 7" (No. 12014), 10" (No. 12012) and 14" (No. 12013) sizes.



CEILING FITTINGS

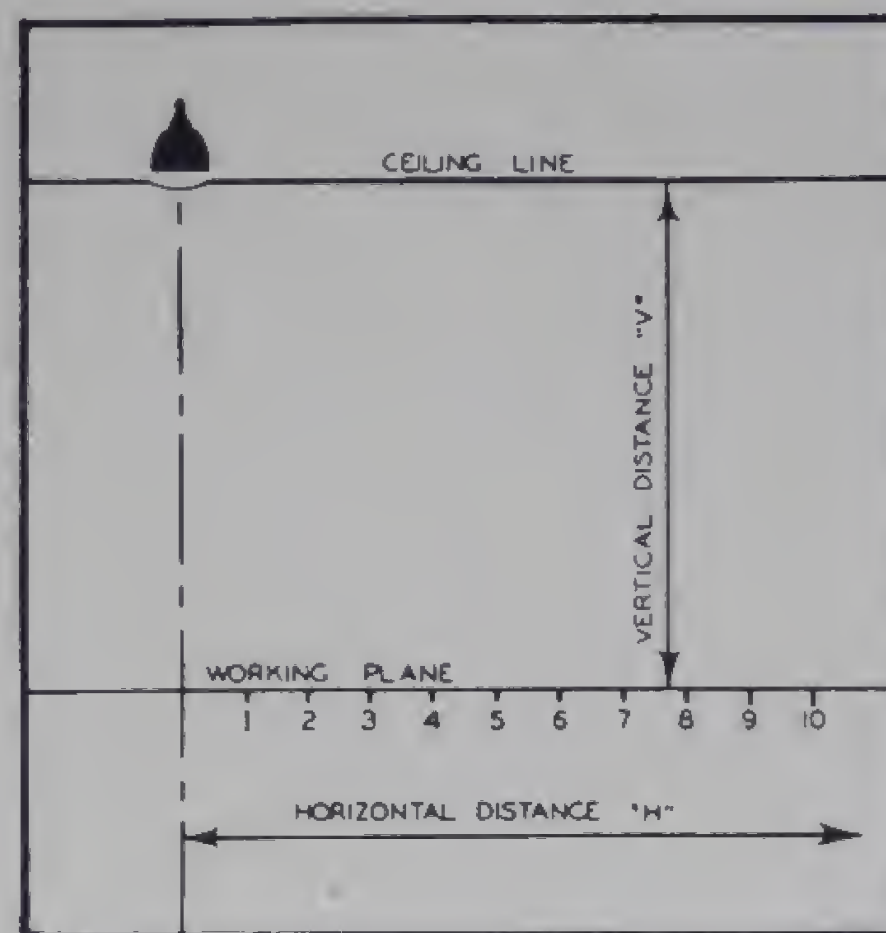
Size	Hinged Rim	Price Each	Flange Rim	Price Each	Cover Glass	Price Each	Louver	Price Each	Wire Guard	Price Each	Plaster Ring	Price Each
18"	None	—	13226-A	\$7.55	9051-F (Dished sanded)	\$18.45	None	—	14526-XA (Dished)	\$11.70	None	....
14"	13203-A	\$10.45	13206-A	3.60	10554 (Flat crackled)	8.30	12013 Concentric	\$12.25	14514-XA (Dished) 14511-XA (Flat)	9.90 8.65	14038	\$4.50
10"	13202-A	4.70	13205-A	2.35	9069 (Dished crackled)	3.25	12012 Concentric	7.50	14513-XA (Dished) 14510-XA (Flat)	8.65 8.10	14010	3.00
7"	13201-A	4.15	13204-A	1.65	10552 (Dished crackled)	1.70	12014 Concentric	7.00	14512-XA (Dished) 14509-XA (Flat)	8.10 4.00	14011	2.50

PLANNING RECESSED LIGHTING

The foot-candle readings in the tables below give values for the intensity of direct light on the horizontal plane at various distances below the unit. These readings were taken in a dark room by the light of a single unit, and represent an absolute minimum; in any actual installation the values in the tables will be substantially increased by reflected light and light from other units.

If a 500-watt lamp is to be used in place of a 300-watt lamp, the values should be increased in proportion to the lumen output of the lamps.

The horizontal intensities due to two or more units may be added directly, to obtain the total horizontal illumination at any point. The intervals in the tables have been chosen so that ordinary interpolation would give substantially correct results.



ACTUAL FOOT-CANDLES AT MOUNTING HEIGHTS INDICATED

DISTRIBUTING UNITS

VERTICAL DISTANCE "V"		8 feet						10 feet						12 feet					
HORIZONTAL DISTANCE "H"		0	1'	3'	5'	7'	10'	0	1'	3'	5'	7'	10'	0	1'	3'	5'	7'	10'
No. 588 Reflector with 300-watt I.F. lamp Round Ceiling Opening	with Glass	21.5	21.5	22.0	19.0	14.0	3.00	15.0	15.5	15.0	13.5	12.0	6.00	11.0	11.0	10.5	10.0	9.00	6.00
	with Louver																		
	with Both	22.0	22.0	17.0	9.00	4.00	1.00	15.0	14.0	11.0	8.00	4.00	1.50	10.5	10.0	9.00	7.00	4.50	2.00
VERTICAL DISTANCE "V"		6 feet						8 feet						10 feet					
HORIZONTAL DISTANCE "H"		0	1'	3'	5'	7'	10'	0	1'	3'	5'	7'	10'	0	1'	3'	5'	7'	10'
No. 575 Reflector with 200-watt I.F. lamp Round Ceiling Opening	with Glass	19.0	17.0	11.0	5.50	2.00	0.75	10.0	10.0	7.50	5.00	2.50	1.00	7.00	6.50	5.50	4.00	2.50	1.00
	with Louver																		
	with Both	22.0	20.0	11.0	4.00	1.00	0.25	13.0	11.0	8.00	4.00	1.50	0.50	8.00	7.50	6.00	4.00	2.00	0.50

SEMI-CONCENTRATING UNITS

VERTICAL DISTANCE "V"		8 feet						10 feet						12 feet					
HORIZONTAL DISTANCE "H"		0	1'	3'	5'	7'	10'	0	1'	3'	5'	7'	10'	0	1'	3'	5'	7'	10'
No. 848 Reflector with 300-watt I.F. lamp Round Ceiling Opening	with Glass	58.0	54.0	23.0	10.0	5.00	2.00	38.0	37.0	21.0	10.0	5.00	2.00	29.0	28.0	17.0	10.0	6.00	2.50
	with Louver	71.0	63.0	25.0	8.00	3.00	0.75	49.0	43.0	22.0	8.50	4.00	1.00	31.0	30.0	17.0	8.00	4.00	1.50
	with Both	57.0	47.0	18.0	6.50	2.50	0.50	35.0	31.0	17.0	8.00	3.50	1.00	25.0	23.0	13.0	7.00	4.00	1.00
VERTICAL DISTANCE "V"		6 feet						8 feet						10 feet					
HORIZONTAL DISTANCE "H"		0	1'	3'	5'	7'	10'	0	1'	3'	5'	7'	10'	0	1'	3'	5'	7'	10'
No. 810 Reflector with 200-watt I.F. lamp Round Ceiling Opening	with Glass	35.0	33.0	17.0	8.00	3.00	0.75	19.0	19.0	13.0	8.00	4.00	1.50	13.0	12.0	10.0	7.00	4.00	2.00
	with Louver	46.0	45.0	16.0	5.00	2.00	0.30	23.0	21.0	14.0	6.00	2.50	0.75	15.0	13.0	10.0	5.00	3.00	1.00
	with Both	32.0	31.0	12.0	4.00	1.00	0.25	18.0	17.0	12.0	5.00	2.00	0.50	12.0	11.0	9.00	5.00	3.00	0.75

CONCENTRATING UNITS

VERTICAL DISTANCE "V"		6 feet						8 feet						10 feet					
HORIZONTAL DISTANCE "H"		0	1'	2'	3'	4'	10'	0	1'	2'	3'	4'	10'	0	1'	2'	3'	4'	10'
No. 804 Reflector with 200-watt I.F. lamp Round Ceiling Opening	with Glass	88.0	69.0	35.0	16.5	8.50	0.25	44.0	42.0	28.0	14.0	7.50	0.30	34.0	31.0	22.0	13.0	8.00	0.75
	with Louver	126.0	94.0	33.0	10.0	4.00	0.20	67.0	59.0	31.0	13.0	5.00	0.25	47.0	40.0	24.0	13.0	6.00	0.25
	with Both	84.0	67.0	30.0	10.0	4.00	0.15	51.0	43.0	26.0	12.0	5.00	0.25	35.0	27.0	20.0	10.0	5.50	0.25

CURTIS ROUND-DEEP HOUSED REFLECTOR

C



The large (300-500 watt) round-deep type is available with 14" round cover glass, glass and louver in combination or louver only. The small (200 watt) round-deep type is available with 10" round cover glass, glass and louver in combination or louver only.

reflector is mounted with an X-ray Kanchan... opposite the... has a flange to support the... ceilings. For... flange with... Hinged rim... guards are...

Plaster Ground ceilings. The... done and...

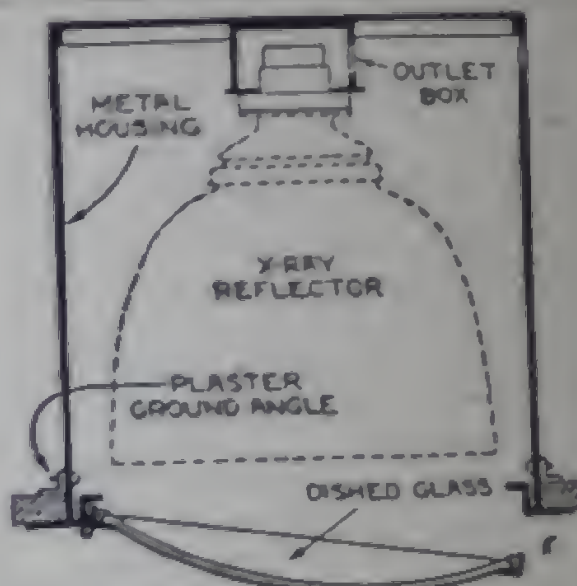
For the large... For the small... Plaster ground... for price...

The catalogue numbers listed below are for complete assemblies as indicated. Plaster ground rings, if necessary, must be ordered separately.

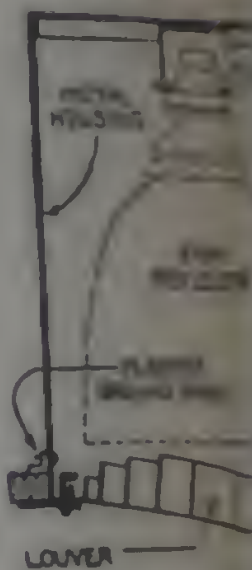
The housing is made of 20 gauge steel, finished white inside and black outside. The X-Ray

LARGE ROUND-DEEP TYPE UNITS WITH 300 OR 500 WATT

DIMENSIONS
Depth: 15 1/4 in.
Diameter: 14 1/2 in.
Flange at bottom: 3/4 in. wide
Hinged Rim
(Outside diameter: 16 7/8 in.)
is bolted to this flange.
Scale: 1 in. = 1 ft. 0 in.



With Cover Glass Only

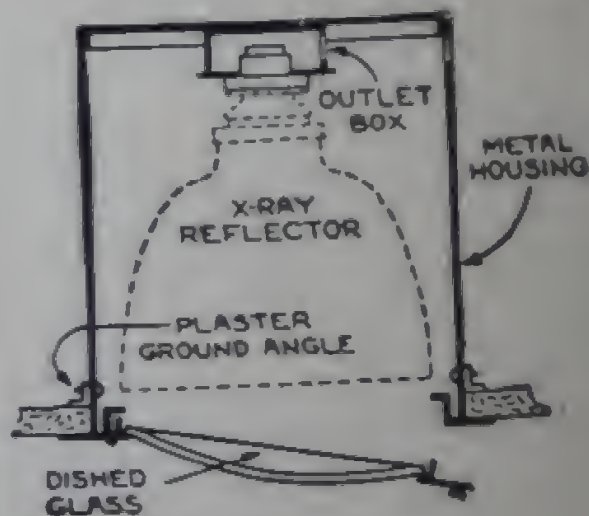


With Louver

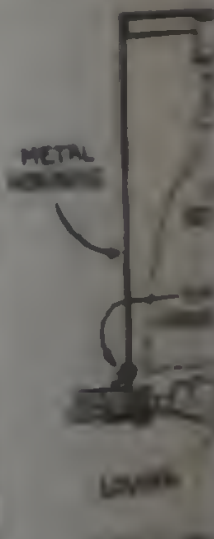
Type of X-Ray Reflector	Cat. No.	Price Each	Cat. No.
Distributing (588)	2309	\$49.25	
Semi-Concentrating (848)	2308	47.60	2318

SMALL ROUND-DEEP TYPE UNITS WITH 200 WATT

DIMENSIONS
Depth: 12 3/8 in.
Diameter: 10 7/8 in.
Flange at bottom: 3/8 in. wide.
Hinged Rim
(Outside diameter: 12 9/16 in.)
is bolted to this flange.
Scale: 1 in. = 1 ft. 0 in.



With Cover Glass Only



With Louver

Type of X-Ray Reflector	Cat. No.	Price Each	Cat. No.
Distributing (575)	2306	\$31.70	
Semi-Concentrating (810)	2305	33.10	2315
Concentrating (804)	2304	33.10	2314



In this cheerful restaurant, overhead lighting provides useful overall appearance.

INSTALLATION

Installation of the unit may be made in concrete, acoustic, or case of plaster ceiling rings simplifies installation. Plaster rings are mounted and the units placed in the following page.

PLASTER

Plaster ground rings, complete unit numbers.

Size	Hinged Rim	Price Each
14"	Plaster	
14"	13203-A	\$16.45
10"	13202-A	4.70
10"	13201-A	4.15

CURTIS ROUND-SHALLOW HOUSED RECESSED UNITS



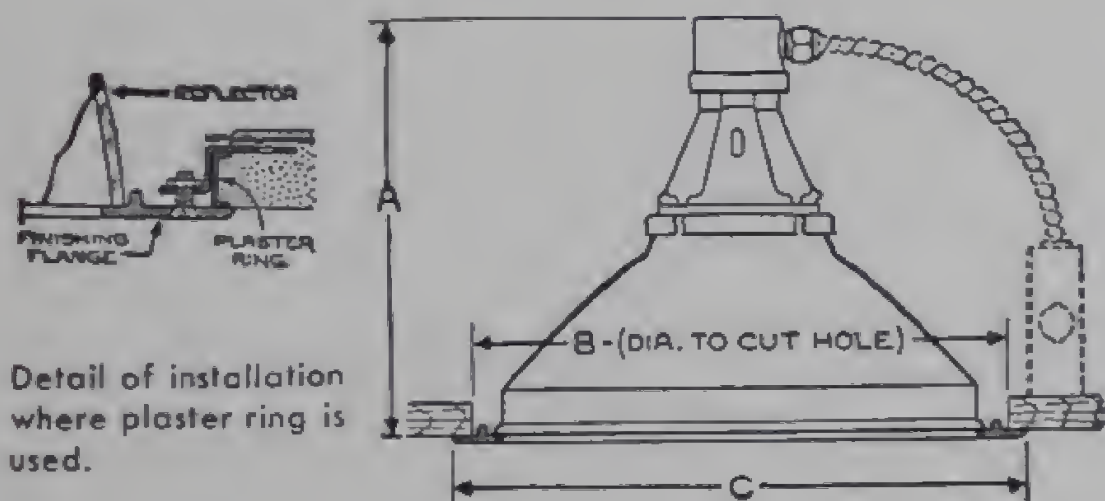
Shallow metal housed recessed units are for use where there is not sufficient space above the ceiling to recess reflector equipment. These units contain no X-Ray Reflector but inside of housing is finished in white fluracite and serves as a reflecting surface.

Dimensions Large Size—depth of housing 6", diameter 14½"; flange at bottom ¾" wide; hinged rim, outside diameter 16⅞" is bolted to this flange.

Dimensions Small Size—depth of housing 6", diameter 10⅞"; flange at bottom ⅞" wide; hinged rim, outside diameter 12⅝" is bolted to this flange.

Type	Description	With Sanded Cover Glass Only		With Cracked Glass and Louver		Plaster Ring if required	
		Cat. No.	Price Each	Cat. No.	Price Each	Cat. No.	Price Each
Large Size	For two 100 Watt lamps With 14" flat cover glass	2302	\$37.00	2322	\$49.25	14038	\$4.50
Small Size	For two 40 Watt lamps With 10" dished glass	2301	21.70	2321	29.15	14010	3.00

CURTIS PLAIN RECESSED UNITS



Where no cover glass is required, an inexpensive type of recessed lighting is provided by reflectors which rest directly on a ceiling flange, following the plan usually used in recessed show window lighting. Catalogue numbers in table below include ceiling flange, X-Ray reflector, holder and socket and shell with side outlet. Plaster ring, if needed, must be ordered separately.

Complete Unit No.	Price Each	Reflector Type	Wattage and Distribution	Flange (Included) Cat. No.	Dimensions			Plaster Ring, if required	Price Each
					A*	B	C		
2122	\$18.80	588	300 or 500 (distrib.)	14025	13⅜"	12½"	14½"	14312	\$2.35
2124	16.95	848	300 or 500 (semi-conc.)	14110	11⅞"	13⅝"	15⅜"	14111	3.25
2126	13.15	575	200 or 300 (distrib.)	14021	10⅞"	9¾"	12⅜"	14028	2.35
2127	16.00	810	200 (semi-conc.)	10417	9⅜"	11⅞"	13¼"	14035	2.35
2128	16.00	804	200 (conc.)	10417	11"	11⅞"	13¼"	14035	2.35
2131†	10.60	844	150 or 100 (conc.)	10517	7⅞"	8⅞"	10⅝"	14027	2.25
2132	10.10	535	100 (distrib.)	14001	7⅝"	6⅜"	7⅝"		
2133	8.20	3	75 or 60 (distrib.)	14005	6"	4⅞"	5¾"		

*Add ½" to allow minimum clearance for removal of reflector from flange.
†May be used with control-ring louver No. 12844.

CURTIS ROUND-DEEP HOUSED RECESSED UNITS



The large (300-500 watt) round-deep type is available with 14" round cover glass, glass and louver in combination or louver only. The small (200 watt) round-deep type is available with 10" round cover glass, glass and louver in combination or louver only.

The catalogue numbers listed below are for complete assemblies as indicated. Plaster ground rings, if necessary, must be ordered separately.

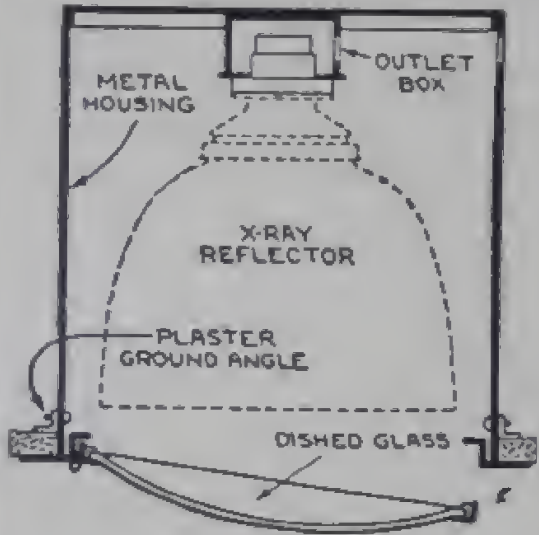
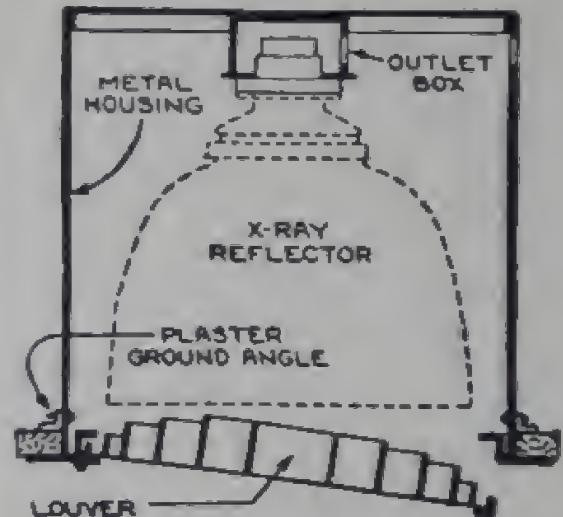
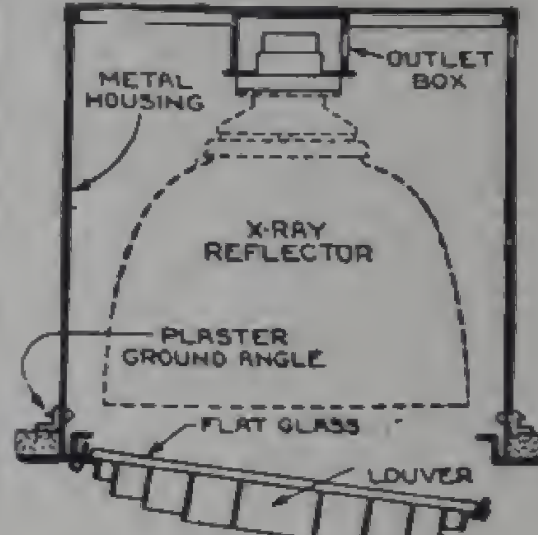
The housing is made of 20 gauge steel, finished white inside and black outside. The X-Ray

reflector is mounted on a standard 4" outlet box with an X-Ray holder and porcelain socket. Knockouts are provided in the side of the housing opposite the knockouts in the outlet box. Housing has a flange at the bottom which can be used to support the unit from wood, metal or acoustic ceilings. The hinged rim is attached to this flange with machine screws to complete installation. Hinged rims are finished in warm grey. Wire guards are available, see page 138.

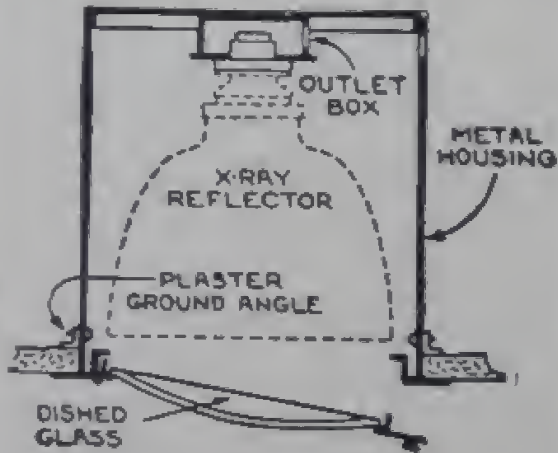
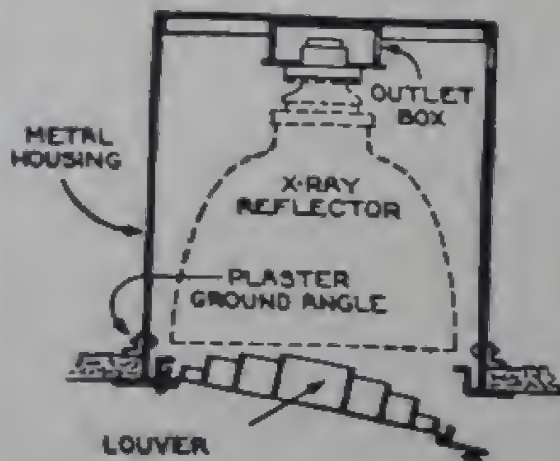
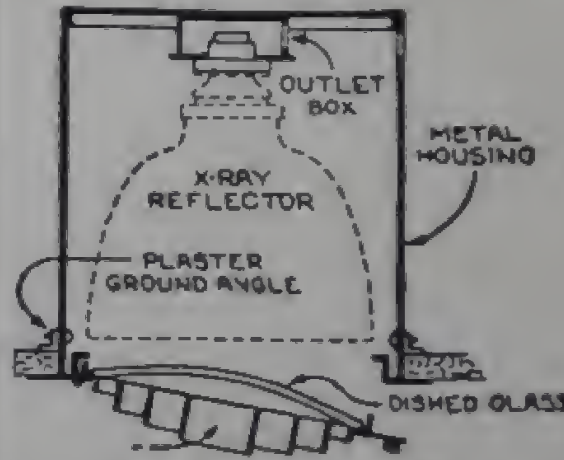
Plaster Ground Rings are required only on plaster ceilings. This ring is installed before plastering is done and the recessed units placed in position later.

For the large type, use Plaster Ring No. 14038. For the small type, use Plaster Ring No. 14010. Plaster rings must be specified as separate items; for prices see page 138.

LARGE ROUND-DEEP TYPE UNITS WITH 300 OR 500 WATT X-RAY REFLECTOR

<p>DIMENSIONS</p> <p>Depth: 15¼ in.</p> <p>Diameter: 14½ in.</p> <p>Flange at bottom: ¾ in. wide.</p> <p>Hinged Rim</p> <p>(Outside diameter: 16½ in.)</p> <p>is bolted to this flange.</p> <p>Scale: 1 in.-1 ft. 0 in.</p>							
	With Cover Glass Only	With Concentric Louver Only	With Glass and Louver				
	Type of X-Ray Reflector	Cat. No.	Price Each	Cat. No.	Price Each	Cat. No.	Price Each
	Distributing (588)	2309	\$49.25	....	.....	2329	\$61.50
	Semi-Concentrating (848)	2308	47.60	2318	\$51.55	2328	59.85

SMALL ROUND-DEEP TYPE UNITS WITH 200 WATT X-RAY REFLECTOR

<p>DIMENSIONS</p> <p>Depth: 12$\frac{3}{8}$ in.</p> <p>Diameter: 10$\frac{7}{8}$ in.</p> <p>Flange at bottom: $\frac{3}{8}$ in. wide.</p> <p>Hinged Rim</p> <p>(Outside diameter: 12$\frac{9}{16}$ in.)</p> <p>is bolted to this flange.</p> <p>Scale: 1 in.-1 ft. 0 in.</p>		With Cover Glass Only		With Concentric Louver Only		With Glass and Louver	
	Type of X-Ray Reflector	Cat. No.	Price Each	Cat. No.	Price Each	Cat. No.	Price Each
	Distributing (575)	2306	\$31.70	.....	.....	2326	\$39.15
	Semi-Concentrating (810)	2305	33.10	2315	\$37.35	2325	40.60
	Concentrating (804)	2304	33.10	2314	37.35	2324	40.60

CURTIS ROUND-SHALLOW HOUSED RECESSED UNITS



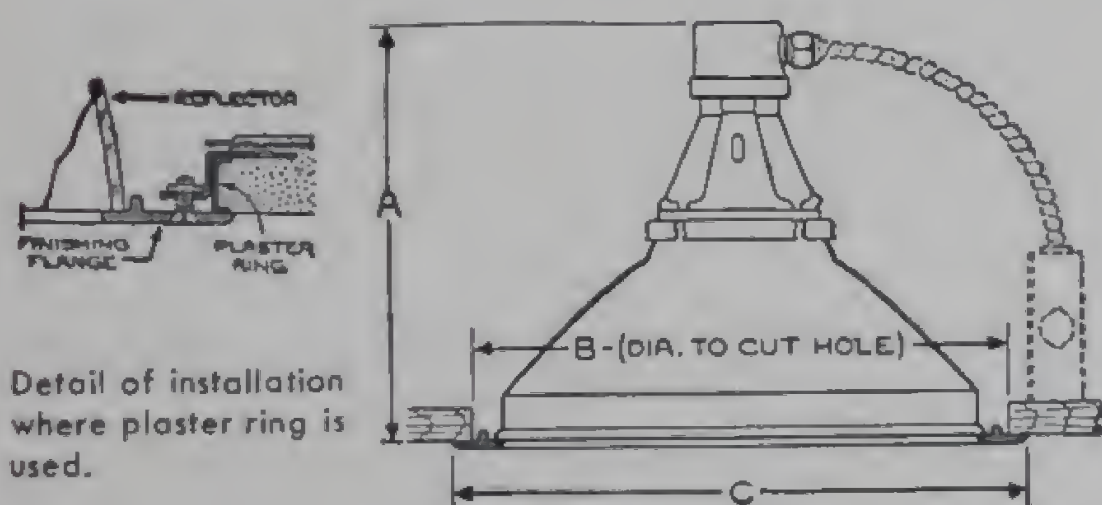
Shallow metal housed recessed units are for use where there is not sufficient space above the ceiling to recess reflector equipment. These units contain no X-Ray Reflector but inside of housing is finished in white fluracite and serves as a reflecting surface.

Dimensions Large Size—depth of housing 6", diameter $14\frac{1}{2}"$; flange at bottom $\frac{3}{4}"$ wide; hinged rim, outside diameter $16\frac{7}{8}"$ is bolted to this flange.

Dimensions Small Size—depth of housing 6", diameter $10\frac{7}{8}"$; flange at bottom $\frac{7}{16}"$ wide; hinged rim, outside diameter $12\frac{5}{8}"$ is bolted to this flange.

Type	Description	With Sanded Cover Glass Only		With Cracked Glass and Louver		Plaster Ring if required	
		Cat. No.	Price Each	Cat. No.	Price Each	Cat. No.	Price Each
Large Size	For two 100 Watt lamps With $14"$ flat cover glass	2302	\$37.00	2322	\$49.25	14038	\$4.50
Small Size	For two 40 Watt lamps With $10"$ dished glass	2301	21.70	2321	29.15	14010	3.00

CURTIS PLAIN RECESSED UNITS



Where no cover glass is required, an inexpensive type of recessed lighting is provided by reflectors which rest directly on a ceiling flange, following the plan usually used in recessed show window lighting. Catalogue numbers in table below include ceiling flange, X-Ray reflector, holder and socket and shell with side outlet. Plaster ring, if needed, must be ordered separately.

Complete Unit No.	Price Each	Reflector Type	Wattage and Distribution	Flange (Included) Cat. No.	Dimensions			Plaster Ring, if required	Price Each
					A*	B	C		
2122	\$18.80	588	300 or 500 (distrib.)	14025	$13\frac{3}{8}"$	$12\frac{1}{2}"$	$14\frac{1}{2}"$	14312	\$2.35
2124	16.95	848	300 or 500 (semi-conc.)	14110	$11\frac{1}{8}"$	$13\frac{5}{8}"$	$15\frac{3}{8}"$	14111	3.25
2126	13.15	575	200 or 300 (distrib.)	14021	$10\frac{7}{8}"$	$9\frac{3}{4}"$	$12\frac{3}{8}"$	14028	2.35
2127	16.00	810	200 (semi-conc.)	10417	$9\frac{3}{8}"$	$11\frac{1}{8}"$	$13\frac{1}{4}"$	14035	2.35
2128	16.00	804	200 (conc.)	10417	11"	$11\frac{1}{8}"$	$13\frac{1}{4}"$	14035	2.35
2131†	10.60	844	150 or 100 (conc.)	10517	$7\frac{1}{8}"$	$8\frac{7}{8}"$	$10\frac{5}{8}"$	14027	2.25
2132	10.10	535	100 (distrib.)	14001	$7\frac{5}{8}"$	$6\frac{3}{8}"$	$7\frac{5}{8}"$		
2133	8.20	3	75 or 60 (distrib.)	14005	6"	$4\frac{7}{8}"$	$5\frac{3}{4}"$		

*Add $\frac{1}{2}"$ to allow minimum clearance for removal of reflector from flange.

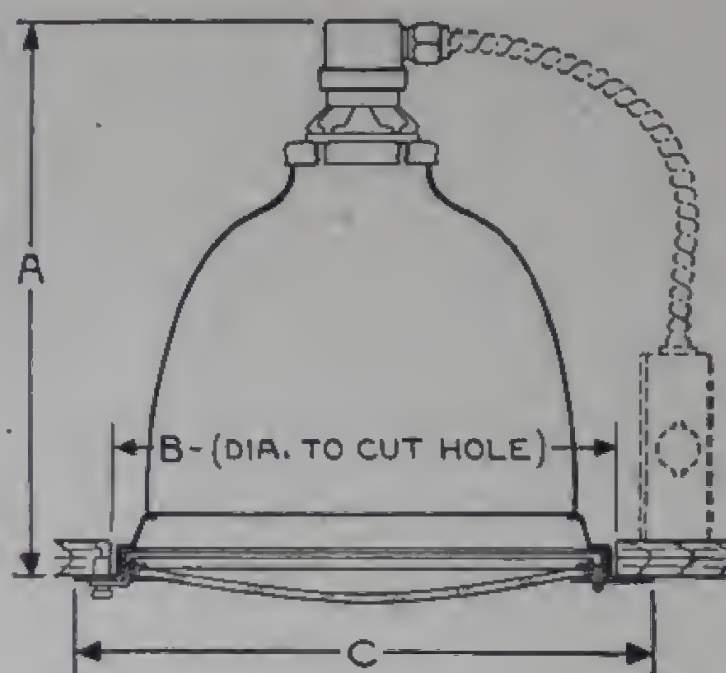
†May be used with control-ring louver No. 12844.

CURTIS OPEN-TYPE RECESSED UNITS

(C.S.A. APPROVED FOR FIRE RESISTIVE CONSTRUCTION)



Hinged-rim Recessed Unit

Dimensions
(see tables below)

Flange Recessed Unit

Hinged-rim Recessed Unit

Units	Dimensions		
	A	B	C
2101-A to H	15 1/8"*	14 1/2"	16 7/8"
2102-A to H	12 7/8"†	14 1/2"	16 7/8"
2104-B to F	12 1/2"*	10 5/8"	12 5/8"
2108-A to H	10"*	10 5/8"	12 5/8"
2109-B to H	8 3/4"*	7 5/8"	9 1/2"

Servicing Units

Hinged-rim units may be serviced either from above or below. The hinged rim offers maximum convenience for cleaning and re-lamping.

Flange units should be installed only where arrangements may be made to service them from above.

Flange Recessed Unit

Units	Dimensions		
	A	B	C
2111-A to H	15 1/8"*	14 5/8"	16 7/8"
2112-A to H	12 7/8"†	14 5/8"	16 7/8"
2114-B to F	12 1/2"*	10 5/8"	12 1/2"
2118-A to K	10"*	10 5/8"	12 1/2"
2119-B to H	8 3/4"*	7 5/8"	9 1/4"

X-Ray Reflector Type, wattage	Plaster Ring†		With Glass Cover only		With Glass and Wire Guard		With Wire Guard only		With Glass and Concentric Louver (Crockled Glass)		With Concentric Louver only	
	Cat. No.	Price Each	Cat. No.	Price Each	Cat. No.	Price Each	Cat. No.	Price Each	Cat. No.	Price Each	Cat. No.	Price Each

COMPLETE HINGED-RIM RECESSED UNITS

Catalogue numbers include X-Ray reflector, holder, socket, mounting collar and hinged rim

Distributing No. 588—300-500 Watt	14038	\$4.50	2101-A	\$38.25	2101-C	\$48.15	2101-E	\$38.60	2101-F	\$50.50	2101-H	\$42.20
Semi-Concentrating No. 848—300-500 Watt			2102-A	36.50	2102-C	46.35	2102-E	36.80	2102-F	48.70	2102-H	40.00
Distributing Med. Base No. 575—200-300 Watt	14010	3.00	2104-B	21.30	2104-D	30.00	2104-E	26.20	2104-F	29.50		
Semi-Concentrating No. 810—200-300 Watt			2108-A	23.00	2108-C	31.70	2108-E	28.00	2108-F	30.50	2108-H	27.25
Distributing No. 535—100 Watt	14011	2.50	2109-B	16.00	2109-D	24.20	2109-E	18.35	2109-F	23.00	2109-H	21.40

COMPLETE FLANGE RECESSED UNITS

Catalogue numbers include X-Ray reflector, holder, socket, mounting collar and flange

Distributing No. 588—300-500 Watt	14038	\$4.50	2111-A	\$31.40	2111-C	\$41.30	2111-E	\$31.75	2111-F	\$43.65	2111-H	\$35.35
Semi-Concentrating No. 848—300-500 Watt			2112-A	29.60	2112-C	39.50	2112-E	30.00	2112-F	41.75	2112-H	33.50
Distributing Med. Base No. 575—200-300 Watt	14010	3.00	2114-B	19.00	2114-D	27.60	2114-E	23.85	2114-F	27.10		
Semi-Concentrating No. 810—200-300 Watt			2118-A	20.70	2118-C	29.35	2118-E	25.55	2118-F	28.10	2118-K	25.00
Distributing No. 535—100 Watt	14011	2.50	2119-B	13.60	2119-D	21.70	2119-E	20.00	2119-F	20.60	2119-H	18.90

*Add 1/2" to allow minimum clearance for removal of reflector.

†Add 1 1/2" to allow minimum clearance for removal of reflector.

‡Plaster ring not included in unit numbers.

CURTIS LOW-PRICED RECESSED UNITS



No. 2120-H equipped with louver No. 12022

Curtis low priced recessed units provide high levels of illumination on both vertical and horizontal planes. These features make the units ideal for stores where merchandise is displayed on shelves and tables.

Specifications: Each unit consists of silver mirror reflector which seats directly on the ceiling flange. Sockets are either medium base for 200-300 watt lamps or mogul for 300-500 watt lamps. Each is available with four-inch outlet box cover assembly or side outlet shell and socket assembly. The concentric louver (not included) is easily removed for cleaning or lamp replacement.

Dimensions: 2120-H or K. Reflector No. 588 used for 300-500 watt units is $11\frac{7}{8}$ " in diameter and requires a hole $12\frac{1}{2}$ " in diameter. The ceiling flange for this unit is $14\frac{7}{8}$ " in diameter.

2130-H or K. Reflector No. 575 used for 200-300 watt units is $9\frac{3}{8}$ " in diameter and requires a hole 10" in diameter. The ceiling flange for this unit is 12" in diameter.

Minimum Height:

2120-H— $13\frac{3}{8}$ "

2130-H— $10\frac{7}{8}$ "

2120-K— $14\frac{5}{8}$ "

2130-K— $11\frac{3}{8}$ "

Finish: Ceiling flange and louver are finished in warm grey.

Cat. No.	Price	Description
2120-H	\$18.80	300-500 watt unit with reflector No. 588, holder, ceiling flange, and side opening shell mogul socket assembly.
2120-K	18.45	300-500 watt unit with reflector No. 588, holder, ceiling flange and four-inch outlet box cover and mogul socket.
12022*	8.10	Louver for 2120 H or K.
14312*	2.35	Plaster ring for 2120 H or K.
2130-H	13.15	200-300 watt unit with reflector No. 575, holder, ceiling flange and side opening shell medium base socket assembly.
2130-K	12.80	200-300 watt unit with reflector No. 575, holder, ceiling flange and four-inch outlet box cover and medium base socket.
12023*	10.80	Louver for 2130 H or K.
14028*	2.35	Plaster ring for 2130 H or K.

*Not included with units. Order separately when needed.

Illumination Data 2120 H and K

Foot-candle readings with 500 watt inside frosted lamps. For 300 watt multiply by .6. For 200 watt multiply by .4. Spacing for best results not to exceed ceiling height.

Ceiling height	Area per outlet Square feet	AVERAGE FOOT-CANDLES—MAINTAINED†		
		Large room 4 or more units in each direction	Medium room 2 or 3 rows of units	Small room 1 row of units
9' to 12'	100	40-45	32-38	28-32
	150	32-36	25-30	23-26
	200	20-23	18-22	17-20
	250	16-18	14-17	13-15
12' to 15'	100	38-42	26-30	19-22
	150	25-28	19-22	17-20
	200	19-21	15-17	13-15
	250	16-18	14-16	11-13

†Depreciation factor of 25% has been deducted from initial readings.

PLANNING INDIRECT LIGHTING

The **first** step in planning any lighting installation is to correctly determine the lighting intensity in foot-candles desired in the interior. This selection for a particular installation will depend upon actual purposes and conditions for which the interior is to be used. Accuracy and minuteness of business and industrial operations, colour of materials worked on or handled, merchandising exigencies, and other factors affect the determination of correct lighting level.

RECOMMENDED FOOT-CANDLES OF ILLUMINATION

(More detailed recommendations made on request.)

Art Galleries	Club and Directors'
General.....10	Rooms.....10-25
Auditoriums.....5-10	Corridors, Halls, etc.....5
Bank—Lobby.....20	Display Rooms
Barber Shops and	Automobile.....10-20
Beauty Parlors.....15-25	Furniture.....20-30
Churches.....5-15	Restaurants.....10
Hospitals—Wards.....10-20	Displays.....30-50
Laboratories.....30-50	Schools
Hotels.....10-30	Class Rooms.....20-30
Libraries.....30-50	Sight Saving Classes.....30-50
Museums—General.....10	Stores.....20-50
Exhibits.....30-50	Theatres.....5-15
Offices—General Space.....25-50	

OUTLET LOCATION AND WATTAGE

Second—from floor plan of room to be lighted

find area, arrangement of outlets and determine wattage per outlet. The architectural features . . . columns, bays, beams, etc. . . will generally determine location of outlets. Areas indicated below are largest that should be lighted from one pendent luminaire.

Average Area per Outlet in Square Feet	Ceiling Height	Watts per Outlet to Produce		
		6 to 10 Foot-Candles	10 to 15 Foot-Candles	15 to 25 Foot-Candles
81	9 ft.	...	200	300
100 to 144	9'5" to 11'0"	200	300	500
169 to 225	11'5" to 15'0"	300	500	750
256	16 ft.	500	750	1000

For best lighting results the colour of the ceiling should be mat finish ivory, white, or light cream. The upper walls should preferably be light in colour as this has a direct bearing on the efficiency of the lighting system. The following table indicates percentages of light reflected by various colours:

Flat white.....82%	Light gray.....60%
Ivory-white.....78%	Light green.....55%
Cream.....74%	Buff.....55%
Caen stone.....70%	Tan.....40%
Ivory tan.....65%	French gray.....35%

CURTIS LUMINOUS INDIRECT LUMINAIRE



A new luminous indirect fixture of special glass. Styled by the eminent Walter W. Kantack and developed by Curtis Engineers to produce a high efficiency and wide distribution of light. The

bowl is made of heavy glass having a graduated thickness, low surface brightness, high reflectivity. The "Tusk-Tone" (ivory of graduated density) colour of the bowl gives a pleasingly warm effect and harmonizes with any interior decorative scheme.

This fixture is particularly suitable for schools, restaurants, stores, offices and locations where soft, indirect light with a luminous lighting source of very low brightness is desired.

Installation is easy—The stem-hanger requires no threading and may be shortened on the job. A self-aligning fitting in the canopy permits the luminaire to hang evenly.

Maintenance is easy—Relamping and cleaning is readily accomplished by allowing the bowl to swing down on two of the three arms projecting from the socket cover.

Cat. No.	Price Each	Lamp Watts	Socket	Ceiling to Top of Bowl	Bowl	
					Diam	Depth
8500	\$28.75	300-500	Mog.	30"	18 1/8"	6 1/4"

Hanger finished in satin aluminum.

CURTIS "EDGE-RAY" LUMINAIRES



No. 1250 "EDGE-RAY" INDIRECT

"Edge-Ray" luminaire is especially suited to distinctive interiors where both efficient indirect lighting and beauty in the luminaire are essential.

"EDGE-RAY" LUMINAIRES

The unusual beauty of "Edge-Ray" luminaires is best appreciated by actually seeing them lighted. Soft luminous sheen surrounds the silvery aluminum bowl exterior . . . the result from an exclusive Curtis feature. Atop the bowl is a reflector ring which redirects a small portion of the light downward on to the bowl . . . the graining of the bowl and the concentric vertical bands pick up this light. Viewed from below, the indirect "Edge-Ray" luminaires effect an interesting array of softly



No. 1260 "EDGE-MONT" DIRECT-INDIRECT

"Edge-Mont" is the "Edge-Ray" style luminaire for direct-indirect lighting. Concentric-ring, staggered steel louvers are centered in the bottom of the bowl. These louvers (painted mat gray) control the strong "plus" light which is directed down on the selling level.

lighted circles. Decorative colour is added by colouring the underside of the reflector ring. (This will be done at the factory at a slight additional cost). Colours and prices on request. "Edge-Ray" luminaires shown here may be used harmoniously and intelligently in the same interior for various types of lighting and locations, or an entire room may be lighted with a single type. Made of aluminum. Equipped with an X-Ray reflector.

Cat. No.	Price Each	Lamp Watts	Socket	Ceiling to Tap of Bowl	Bowl	
					Diam	Depth
EDGE-RAY LUMINAIRES						
1250	\$44.00	300-500	Mog.	36"	21 $\frac{3}{8}$ "	8"
1270	51.60	750-1000	Mog.	48"	27 $\frac{1}{2}$ "	11"
EDGE-MONT LUMINAIRE						
1260	\$44.00	300-500	Mog.	36"	21 $\frac{3}{8}$ "	8"

Finished in lustrous aluminum.

CURTIS INDIRECT LUMINAIRES



"ECLIPSE"

A unit which uses the same X-Ray reflector as the "Winner," and is equally efficient. With its shallower bowl it is adaptable to areas with lower ceiling height.



"WINNER"

This is a totally indirect luminaire embodying simplicity and trimness in style with maximum lighting efficiency. Recommended for those interiors where close eye-work is performed—offices, schools, drafting rooms.

Curtis Indirect luminaires, with concealed X-Ray reflectors, produce a high intensity of glareless light that is evenly distributed throughout the room. With no bright spots and almost shadowless lighting, these luminaires provide the type of illumination that is easy on the eyes and this insures fast, accurate, comfortable work.

Similar in construction to those used for show window lighting, the X-Ray silver-mirrored reflectors embodied in the design of these indirect luminaires offer distinctive advantages not found in ordinary fixtures.

The scientific design and high efficiency of X-Ray reflectors insure accurate light control and maximum light output. The heavy coating of silver and the exclusive Golden Armour process insures a uniform reflecting surface throughout life.

Maintenance is easy with X-Ray reflectors. Simply by wiping dust from the glass reflector, the unit can be restored to initial efficiency. There is nothing to corrode; nothing to depreciate.

X-Ray reflectors, the heart of Curtis Indirect luminaires, are made in varying shapes and with different corrugations in the glass. This gives the proper light control in accordance with the requirements of the lamp. These shapes and corrugations are determined in the laboratories of Curtis Lighting and are a result of fifty years of experience in the lighting field.

Cat. No.	Price Each	Lamp Watts	Socket	Ceiling to Top of Bowl	Bowl	
					Diam	Depth
ECLIPSE						
5500	\$28.75	300-500	Mog.	36"	19 $\frac{1}{8}$ "	5 $\frac{1}{2}$ "
WINNER						
5090	\$28.75	300-500	Mog.	36"	19 $\frac{1}{2}$ "	7"

CURTIS ALZAK LUMINAIRE



THE "RIVAL"

"THE RIVAL"

An attractive luminaire with Alzak aluminum reflecting surface. A superior method of processing the aluminum has been used under the Alzak patents to produce a hard, clear, crystalline permanent surface—the qualities necessary for a highly efficient, heat resisting reflecting surface. For efficient delivery of comfortable glareless light this unit is outstanding and with its neat appearance and moderate cost is very popular for schools, offices and stores. Finished in emiered aluminum.

Cat. No.	Price Each	Lamp Watts	Socket	Ceiling to Top of Bowl	Bowl	
					Diam	Depth
1050	\$21.00	300-500	Mog.	36"	18 $\frac{3}{4}$ "	5 $\frac{7}{8}$ "

CURTIS BOWL REFLECTOR LUMINAIRE



"L'ORION"

"L'ORION"

A tailored design for use with bowl reflector lamp. Moderately priced, with trim, smooth flowing lines that enhance modern architectural schemes, this luminaire is in great favour for soft, even, glareless illumination in the classroom and business interior. Lamps are conveniently accessible for replacement from below. Finish is in satin aluminum.

Cat. No.	Price Each	Lamp Watts	Socket	Ceiling to Top of Bowl	Bowl	
					Diam	Depth
155	\$28.00	300-500	Mog.	36"	19 $\frac{1}{4}$ "	3 $\frac{1}{8}$ "

CURTIS COVE LIGHTING EQUIPMENT



Curtis cove lighting equipment makes possible an unusual architectural treatment in this large department store.

Because it is built in, or permanently affixed to, the architectural elements of an interior, competent engineering, planning, designing, and installation are required to make cove lighting successful.

Cove lighting installations differ, each presenting an individual engineering problem. Services of our Lighting Service Department are available, and will be helpful to prospective users of cove lighting.

PLACEMENT OF THE COVE

Location of the cove on the wall, in relation to the flat ceiling, is explained in the diagram. Distance down from the ceiling should permit proper distribution of light; this distance will necessarily be greater for wide rooms than for narrow rooms since it is necessary to project the light farther to the center of the ceiling area. Obviously, the construction of the walls will limit the size of the cove.

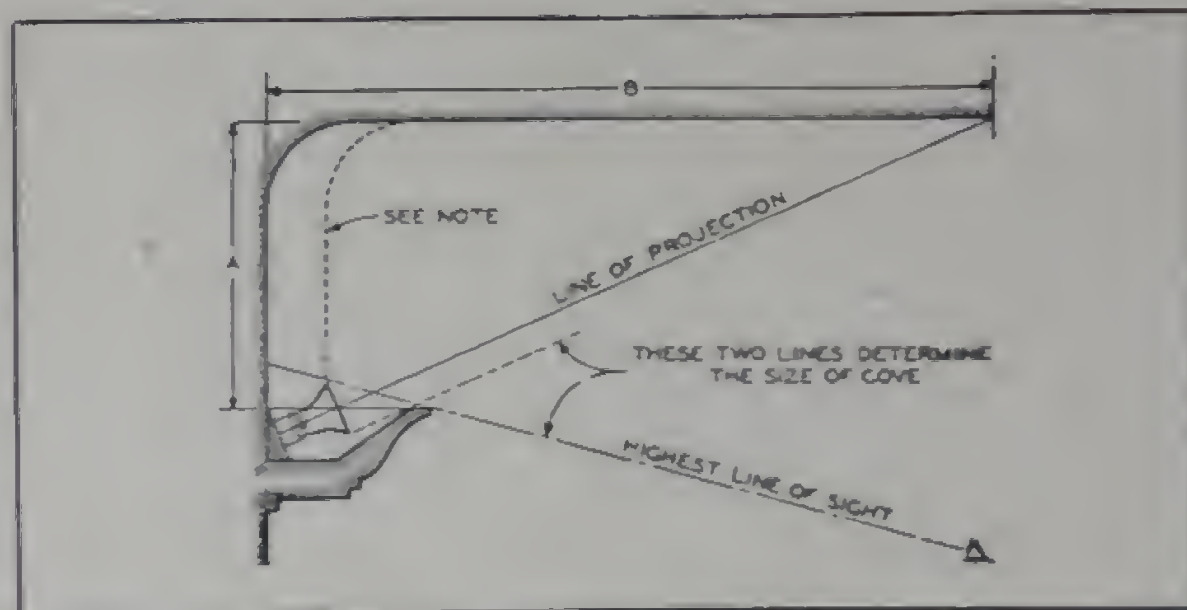
Shape and design of the cove will be influenced by the architecture of the interior. The ideal condition is an unobstructed ceiling, flat or slightly arched. (Unusual ceilings require special consideration.)

Upper wall and ceiling surface finish and colour are important considerations influencing indirect lighting efficiency. For best results use white, cream or ivory mat finish. These have a reflection factor of 75% to 85%. Pale pastel colours . . . from 50% to 75%; acoustical materials in natural finish . . . from 25% to 75%.

FLUORESCENT COVE LIGHTING

In properly engineered applications of fluorescent cove lighting, under favorable conditions, 1 watt per square foot will produce 6 to 10 foot candles.

Fluorescent equipment suitable for cove lighting is more fully described on page 66.



Section showing location of the cove on wall, in relation to the flat ceiling. Note: To reduce size of cove, equipment may be recessed to front edge of reflector.

SPACING OF X-RAY REFLECTORS

Data for permissible spacings for each reflector will be found on the next page. These spacing recommendations assume that the distance of the ceiling above the lamp center is never less than one-tenth the room width.

WATTAGE

A general rule for specifying wattage for cove lighting is that one watt per square foot will give 2 to 4 foot-candles. The higher figure compares satisfactorily with the efficiency to be expected from indirect pendent luminaires installed. However, it is obtainable only under favorable installation conditions; i.e., in fairly large rooms with very light walls and ceiling with the cove located far enough below the ceiling to permit maximum utilization of the light.

INSTALLATION METHODS

The following page presents typical installation diagrams for X-Ray cove reflectors mounted on CurtiStrip (CurtiStrip comes unwired). In simple coves, the reflectors are usually mounted in front of the wall, as shown in the diagram above. When a small cove is desired, equipment may be partially recessed into the wall up to the front edge of the reflector.

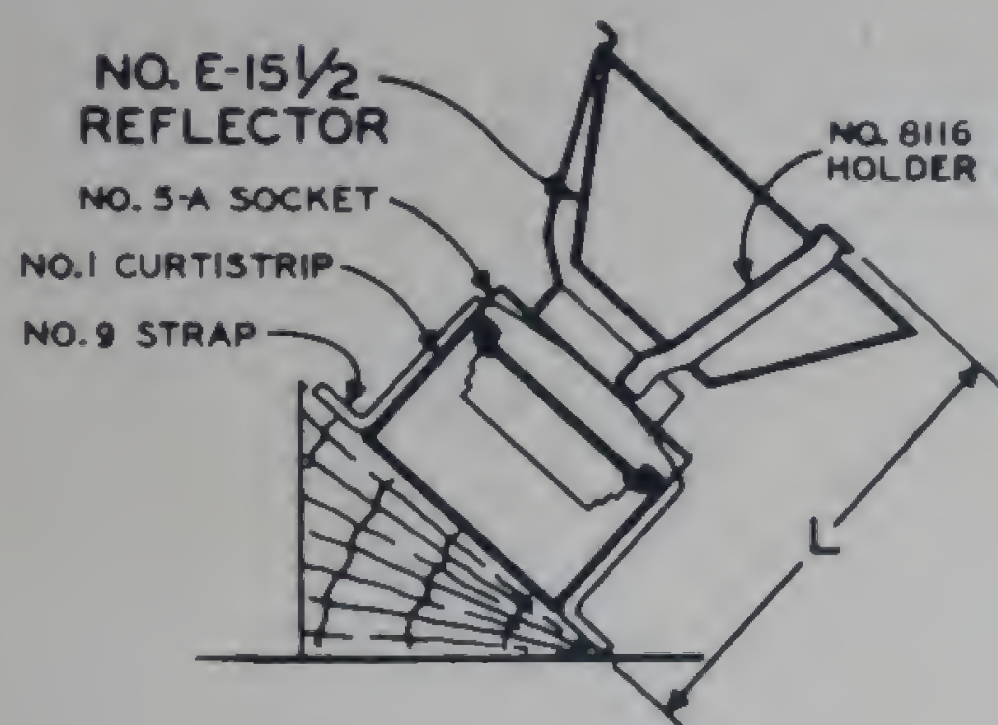
MAINTENANCE

Careful consideration should be given to the maintenance of lighting coves. The reflector equipment must be periodically dusted and the lamps normally replaced to insure continuous efficiency. If the location of the cove prohibits easy access from the front, special maintenance arrangements must be made to facilitate accessibility from behind.

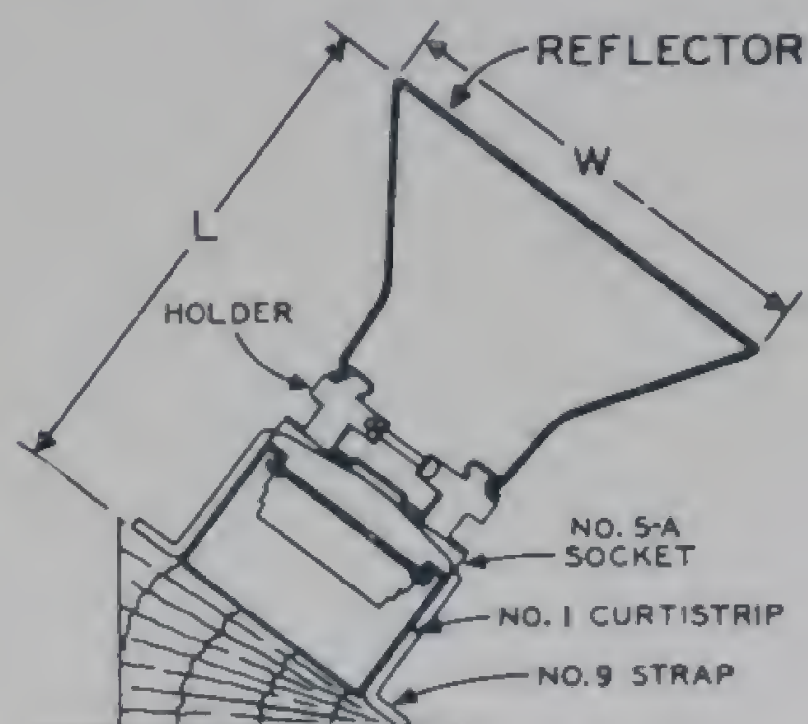
CURTIS COVE LIGHTING EQUIPMENT



Cove lighting reflectors on CurtiStrip



Section showing No. 8356 on CurtiStrip



Section showing No. 8360 or No. 8364 on CurtiStrip

Concentrating Type X-Ray cove reflectors act as small powerful floodlights in projecting light to the center ceiling area. It is essential that this type be used in wide rooms, and/or where cove is mounted very near the ceiling. These reflectors may be closely spaced for high intensity cove lighting.

By tilting the socket or wireway, these reflectors may be mounted at any angle necessary to gain the desired light projection.

Complete fittings are available for concentrating reflectors which permit their installation under a variety of conditions.




DIMENSIONS AND SPACINGS

for Concentrating Type X-Ray Reflectors

Lamp Watts	Reflector Cat. No.	L	W	Minimum Spacing
25 to 40	E-15 1/2	4 7/8"	4 1/8"	4 5/8"
60 to 75	EC-52	5 3/4"	5"	5 1/4"
100	EC-74	7 1/8"	7 1/4"	7 1/2"

COMPLETE REFLECTOR UNITS

Reflector and holder complete with socket

		
Side Outlet Socket	No. 5-A Socket	Box Cover Socket Unit

For Mounting on

Lamp Watts	3/4" Pipe		CurtiStrip		3" Box		4" Box	
	Cat. No.	Price Each	Cat. No.	Price Each	Cat. No.	Price Each	Cat. No.	Price Each
25-40	8355	\$4.20	8356	\$3.80	8357	\$4.00	8358	\$4.15
60-75	8359	5.30	8360	4.90	8361	5.10	8362	5.30
100	8363	7.40	8364	7.00	8365	7.15	8366	7.35

REFLECTOR AND HOLDER ASSEMBLY ONLY

Lamp Watts	Reflector only		Holder only		Reflector and Holder	
	Cat. No.	Price Each	Cat. No.	Price Each	Cat. No.	Price Each
25-40	E-15 1/2	\$2.45	8116	\$0.40	8245	\$2.90
60-75	EC-52	3.50	12100	.50	8255	4.00
100	EC-74	5.60	12100	.50	8277	6.05

CURTISTRIP EQUIPMENT



CurtiStrip is a large capacity (30 No. 14 R. C. wires) wiring channel and raceway that offers unusual flexibility and a wide range of uses with its standardized fittings. The patented snap-in flat cover permits outlets to be installed on any spacing. The cover, placed between sockets or fittings, is cut to length required with tinner's shears and snaps into the lips of the channel. Channel may be cut to any length with a hacksaw. Sections longer than 10 feet may be coupled together to form a continuous channel.



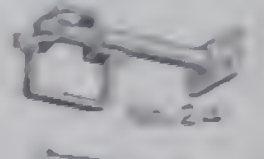

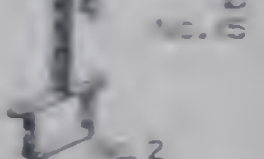
CURTISTRIP CHANNEL AND COVER

Channel and cover made of 20-gauge cold rolled steel, cadmium plated. Size, 2½" wide by 1½" deep.

Cat. No.	Price Per ft.	Description	Std. Pkg.
1	\$6.90	Channel with cover, 10 ft. lengths	100 ft.
1-A	.63	Channel only, 10 ft. lengths	100 ft.
1-B	.15	Cover only, 10 ft. lengths	100 ft.


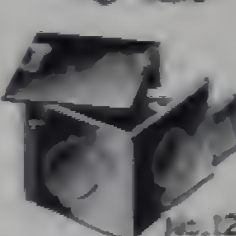
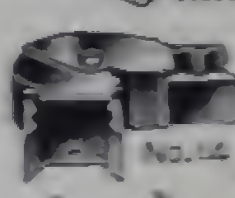


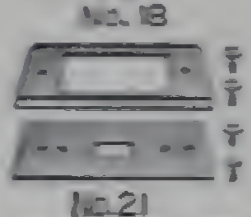
CURTISTRIP SUPPORTS

These five standard hangers offer complete flexibility for mounting CurtiStrip.

Fitting	Cat. No.	Price Each	Description	Std. Pkg.
 No. 9	9	\$0.15	Strap for holding CurtiStrip against any flat surface	10
 No. 10	13	.85	Bracket to hang CurtiStrip on pipe or chain hanger	10
 No. 24	24	2.45	Bracket assembly	10
 No. 2	2	1.80	Universal Hanger. Includes two-piece perforated hanger, one strap, 4 angle brackets and 6 bolts	10
 No. 15	15	.85	Hanger for mounting CurtiStrip on transom bar or side wall	10


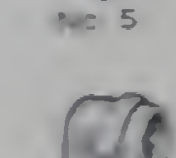


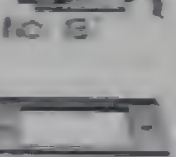
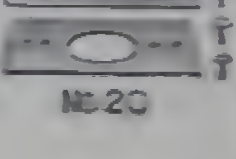
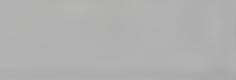
CURTISTRIP FITTINGS

Standard Finish: Cadmium Plate

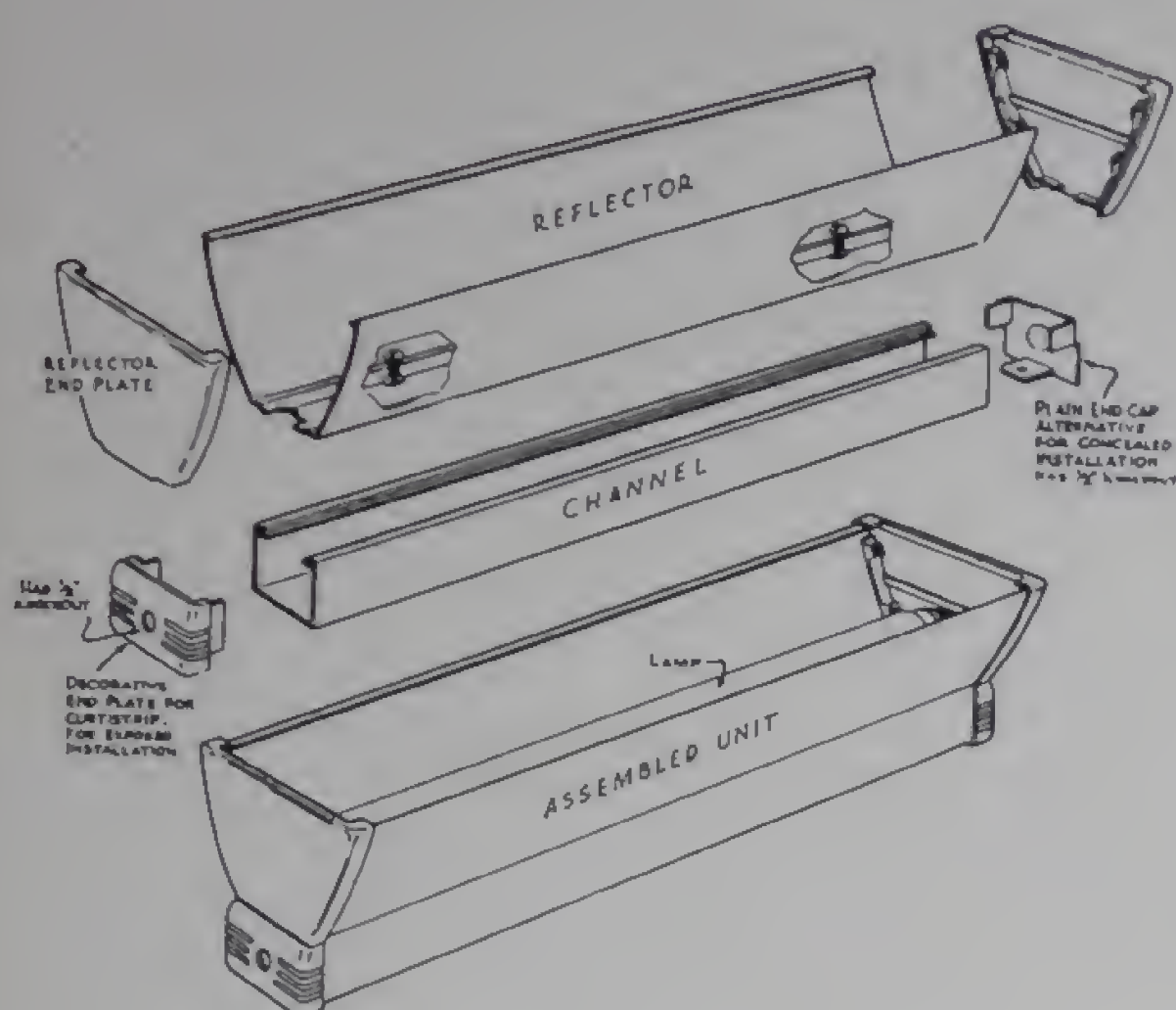
Fitting	Cat. No.	Price Each	Description	Std. Pkg.
 No. 5	6	\$0.22	End cap for closing ends of CurtiStrip. Has ½" knockout	10
 No. 12	12	3.00	Service box for connecting ¾" to 1½" conduit to CurtiStrip	1
 No. 14	14	2.90	Adjustable elbow for angles of 70° to 180°	1
 No. 16	16	.54	Coupling for connecting two pieces of CurtiStrip	10
 No. 18	18	.95	Box Adapter fits CurtiStrip to standard 4" outlet box	10
 No. 21	21	.88	Switch Plate mounting. Takes standard toggle switch	10

SOCKETS AND RECEPTACLES

CurtiStrip sockets and receptacles can be spaced as close as 2¼" on centers. Two-piece construction simplifies wiring.

Fitting	Cat. No.	Price Each	Description	Std. Pkg.
 No. 5	5	\$0.90	Standard porcelain socket with shade holder groove	50
 No. 5-A	5-A	.90	Special porcelain socket, no shade holder groove	50
 No. 8	8	1.80	Porcelain angle socket for X-Ray cove reflectors	50
 No. 19	19	.90	Nipple attachment for ¾" conduit or fittings	10
 No. 19-BX	19-BX	.72	Attachment for ¾" BX or Greenfield	10
 No. 20	20	.88	Single Receptacle plate. Takes all standard receptacles	10
 No. 23	23	.88	Duplex Receptacle plate. Takes all standard receptacles	10

FLUORESCENT CURTISTRIP



FLUORESCENT CURTISTRIP

Fluorescent lamps can be used with CurtiStrip. Ballasts are available which fit inside the channel and a complete line of fittings and reflectors provide means of mounting the lamps and efficiently directing the light. For complete details see page 66.

Fluorescent CurtiStrip can be made up in continuous runs or in individual units. The reflectors and lamps can be placed end to end or spaced out at any desired distance. The line wires can be fed in one end and carried through the CurtiStrip, reducing wiring costs.

Reflectors are available in three shapes, semi-concentrating, distributing and directional for 18", 24", 36" or 48" lamps. The reflectors are carefully designed to take maximum advantage of the high efficiency of the fluorescent lamp. Correct contours avoid trapping of light, such as occurs with inferior equipment, and the variety of reflector shapes insures the correct distribution for every application.

SOCKETS AND HOLDERS FOR X-RAY REFLECTORS

	Cat. No.	Price Each	Description
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METAL SHELL PORCELAIN SOCKETS—MEDIUM BASE

For Screw-engaging X-Ray Holders only



No. 8052-S

8052-S	\$1.30	With $\frac{3}{8}$ " side outlet
8053-B	1.30	With $\frac{3}{8}$ " back outlet
8251-S	1.70	With $\frac{1}{2}$ " side outlet
8257-B	1.70	With $\frac{1}{2}$ " back outlet

With Groove for Clamping Type Holders



No. 8287-S

8286-B	\$1.30	With $\frac{3}{8}$ " back outlet
8287-S	1.30	With $\frac{3}{8}$ " side outlet
8290-B	1.70	With $\frac{1}{2}$ " back outlet
8291-S	1.70	With $\frac{1}{2}$ " side outlet

METAL SHELL PORCELAIN SOCKETS—MOGUL BASE



No. 8300-B

8099-S	\$2.15	With $\frac{3}{8}$ " side outlet
8100-B	2.15	With $\frac{3}{8}$ " back outlet
8300-B	2.50	With $\frac{1}{2}$ " back outlet
8301-S	2.50	With $\frac{1}{2}$ " side outlet

PORCELAIN SOCKETS—SOCKET ONLY

Medium Screw Base



No. 8051

8051	\$0.55	With screw terminals, for X-Ray holders
8451	.55	With screw terminals; has shade holder groove

Mogul Screw Base

8103	\$1.35	With screw terminals, for X-Ray holders
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	Cat. No.	Price Each	Description
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BOX COVER SOCKET UNITS—MEDIUM BASE

For Screw-engaging X-Ray Holders



No. 10146-B

10145-B	\$1.10	For 3" outlet box
10146-B	1.30	For 4" outlet box

With Groove for Clamping Type Holder

10160-B	\$1.10	For 3" outlet box
10161-B	1.30	For 4" outlet box

HOLDERS FOR X-RAY REFLECTORS—SCREW ENGAGING

For use with X-Ray Sockets without shade holder groove. Also for No. 5-A (CurtiStrip) Socket



No. 12100

12100	\$0.50	2 1/4" Form O
10127	.72	2 1/4" Form H
10300	1.10	3 1/4" Form A
10010	1.80	3 3/4" X-Ray
10377	1.25	3 1/4" X-Ray for 810
10414	1.45	5" X-Ray (for 848 and EC-68)
10800	1.45	3 3/4" X-Ray
10012	.27	Holder Extension



No. 10377

For use with X-Ray or Standard Porcelain Sockets —with shade holder groove. Also for No. 5 (CurtiStrip) Socket



No. 10500

10500	\$1.10	3 1/4" Form A
10668	1.45	3 3/4" Form X for Nos. 420, 500, and 530
10400	1.10	3 1/4" Form A for standard brass shell sockets

GENERAL ELECTRIC "COMMODORE"



General Electric Commodores provide excellent semi-indirect or luminous indirect illumination for offices, drafting rooms, class-rooms and other interiors where quality incandescent lighting is desired. Commodore luminaires blend into the ceiling and have no black spots, no dark rings, no glaring spots of brightness. The quality of illumination which they provide is similar to soft, pleasant sky light.

Commodores are manufactured in a complete series for wattages from 200 W to 1000 W. All hangers and reflectors are similarly styled, so that an installation requiring units which utilize various sizes of lamps and reflectors will have complete uniformity of appearance.

Commodore reflectors are molded from a urea-formaldehyde compound which is light in weight, yet very hard and resilient. Reflector attaches to hanger by a simple bead chain and wire suspension which can be quickly disengaged for cleaning or relamping. Reflectors are white as shown in the tabulation below. Hangers are made of aluminum, finished in satin aluminum. Canopies are provided with a knockout for canopy switch.

Permanence

As long as Commodore units are hung without any change in construction after they leave the factory, and are properly maintained while in

Cat. No.	Price Each	Lamp Watts	Colour	Dimensions (Inches)		Socket	Standard Package	
				Reflector Dia	Length Overall		Quantity	Weight
265	\$10 80	200-300	White	15	28	Med.	4	13
2653	10 00	200-300	White	15	14	Med.	4	13
369	17 10	300-500	White	19	34	Mog.	1	7
3693	16 20	300-500	White	19	16½	Mog.	1	7
763	35 10	750	White	23	44	Mog.	4	38
106	35 10	750-1000	White	26	48	Mog.	4	42

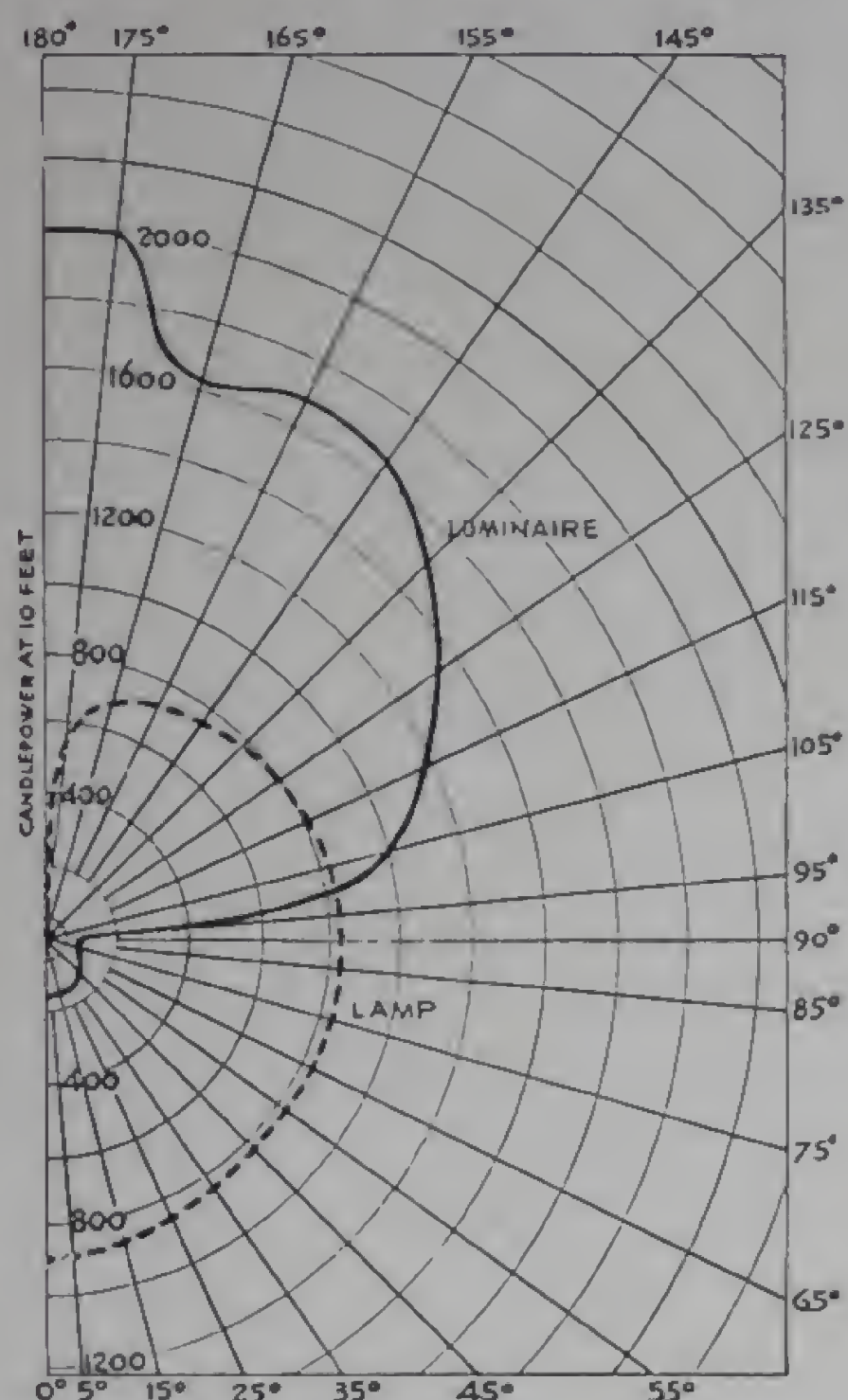
Lamp Shield for 300-500-watt Commodores—Cat. No. 3487, \$1.05 each.

For additional length hanger, add \$0.90 per foot, or fraction thereof.

Replacement bowls only: 200-300-watt size, \$5.40 each; 300-500-watt size, \$10.80 each; 750-1000-watt size, \$27.90 each.

Replacement bead chain and wire suspensions: \$0.65 per set of three.

GENERAL ELECTRIC "COMMODORE"



Distribution Curve—No. 369

service, the reflectors are warranted not to deteriorate. They will not support combustion and will only char when submitted to high temperatures.

Overall Efficiency

For an economical lighting installation, a high overall efficiency is essential. High efficiency readings are often sacrificed in Commodore units, however, in order to keep the surface brightness figure low. This provides for comfortable seeing without glare.

Maintenance

If Commodore reflectors are dusted on a regular schedule, their original efficiency will be maintained over a long period of time. In addition, reflectors should be taken down at definite intervals and



No. 2653—3693

thoroughly washed. A warm soap solution containing any mild water softener such as Tri-Sodium Phosphate, Borax or Calgon is recommended.

Performance Table

In reading these figures, the following lighting concepts should be borne in mind:

Low Surface Brightness: Surface brightness should be sufficiently low to prevent glare from the reflector.

Downward and Upward Component: The ratio of the downward and upward component determines whether the unit can be classified as a semi-indirect or indirect unit. By varying the density of the molding powder, the same size reflector can often qualify for both of these categories.

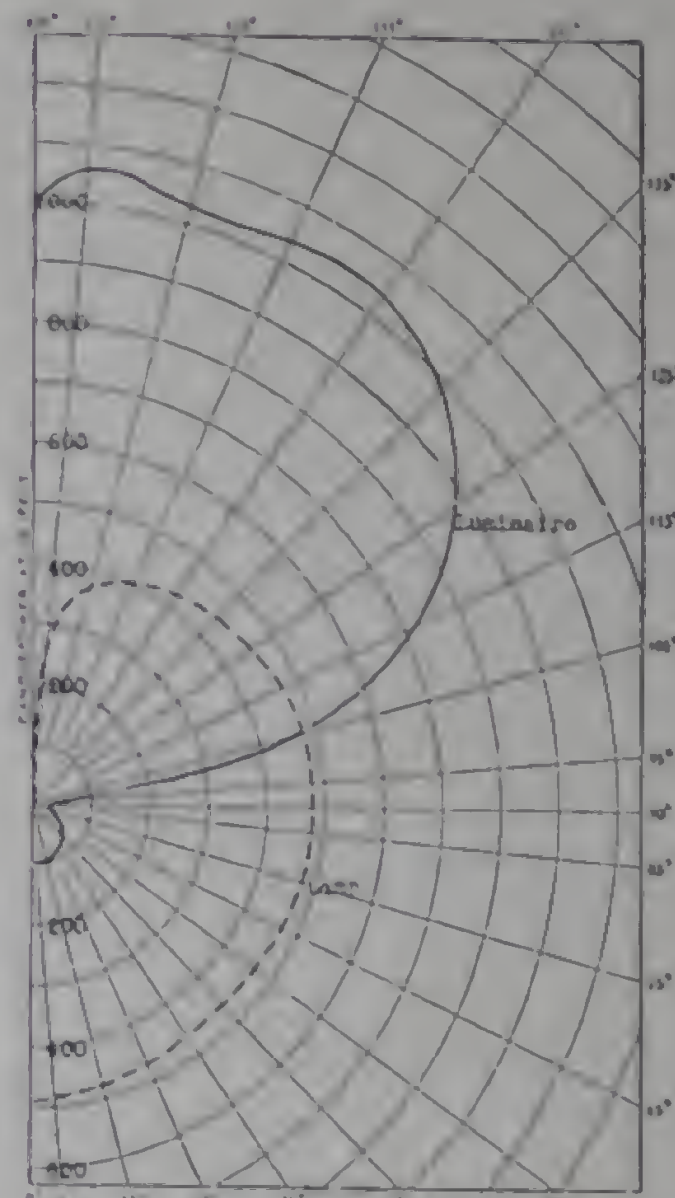
ILLUMINATION PERFORMANCE

Cat. No.	*Ave. Fcs In Service	Square Feet per Luminaire					
		Large Room Width 4 times height		Medium Room Width 2 times height		Small Room Width equals height	
		Light Finish	Med'm Finish	Light Finish	Med'm Finish	Light Finish	Med'm Finish
369	20	133	86	99	64	74	46
	30	97	63	76	46	53	31
	40	73	47	57	35	40	23
	50	58	38	46	28	32	19

*Using 500-watt I.F. Lamp.
Maintenance Factor .65.

Cat. No.	Diameter Reflector (Inches)	Lamp	Colour	Surface Brightness Candlepower per Sq. In.		Distribution of Luminaire Output		Overall Efficiency	Classification
				Min.	Max.	Downward	Upward		
265	15	300 W-IF	White	0.4	1.8	12.5%	71.0%	83.0%	Semi-indirect
369	19	500 W-IF	White	0.3	0.8	6.5%	75.0%	81.5%	Indirect
763	23	750 W-IF	White	0.2	1.0	5.5%	73.5%	79.0%	Indirect
106	26	1000 W-IF	White	0.1	0.6	3.5%	69.0%	72.5%	Indirect

THE "SUPERLUX"



Distribution Curve

This semi-indirect luminaire provides comfortable illumination for schools, offices, stores and similar locations. The luminous glass bowl blends with the ceiling, thus eliminating brightness contrasts within the field of view.

Approximately 92% of total light output is directed upward, and 8% downward. Bowl bright-

ness does not exceed 0.8 candle power per square inch. Overall efficiency is 82.5%. Hangers are finished in satin chrome.

Cat. No.	Price Each	Lamp Watts	Diameter (Inches)	Overall L'gth (Ins)	Std Pkg	
					Qty	Wt
6575	\$24.00	300-500	18 1/4	30	1	17

For additional length hanger, add \$0.60 per foot or fraction.

FLUSH BOXES



Round



Square



Rectangular



Semi-Flush

These recessed fixtures are ideal for general lighting in smart shops, auditoriums, corridors, and any locations where inconspicuous fixtures are desired. They are suitable for areas where head-room is restricted, such as play-rooms, kitchens, and under mezzanines.

Round, square, and rectangular flush fixtures

are supplied with flat, flashed-opal glass. Semi-flush fixtures are available with one (No. 7465) or two (No. 7466) square opal bowls.

Frames are finished in polished chrome. Inside of box finished baked white enamel. Outside is asbestos covered.

Cat. No.	Price Each	Size (Inches)	No. of Sockets	Total Maximum Wattage	Dimensions (Inches)			Standard Package	
					Opening	Box Depth	Box Size	Quantity	Weight
ROUND FLUSH TYPE									
7450	\$ 12.25	6	1	40	6 $\frac{1}{4}$	3 $\frac{3}{4}$	6	1	4
7451	13.00	8	1	60	8 $\frac{1}{4}$	4 $\frac{1}{4}$	8	1	5
7452	14.50	10	2	80	10 $\frac{1}{4}$	5 $\frac{1}{4}$	10	1	6
7453	16.25	12	2	100	12 $\frac{1}{4}$	6	12	1	9
7454	24.50	16	4	180	16 $\frac{1}{4}$	6	16	1	15
SQUARE FLUSH TYPE									
7455	13.80	6 x 6	1	40	6 $\frac{1}{4}$ x 6 $\frac{1}{4}$	3 $\frac{3}{4}$	6 x 6	1	5
7456	15.40	8 x 8	1	60	8 $\frac{1}{4}$ x 8 $\frac{1}{4}$	4 $\frac{1}{4}$	8 x 8	1	6
7457	18.00	10 x 10	2	80	10 $\frac{1}{4}$ x 10 $\frac{1}{4}$	5 $\frac{1}{4}$	10 x 10	1	9
7458	20.00	12 x 12	2	150	12 $\frac{1}{4}$ x 12 $\frac{1}{4}$	6	12 x 12	1	12
7459	26.50	16 x 16	4	200	16 $\frac{1}{4}$ x 16 $\frac{1}{4}$	6	16 x 16	1	20
RECTANGULAR FLUSH TYPE									
7460	13.00	4 x 6	1	25	4 $\frac{1}{4}$ x 6 $\frac{1}{4}$	3 $\frac{3}{4}$	4 x 6	1	4
7461	14.60	6 x 8	2	60	6 $\frac{1}{4}$ x 8 $\frac{1}{4}$	4 $\frac{1}{4}$	6 x 8	1	6
7462	16.50	7 x 10	2	80	7 $\frac{1}{4}$ x 10 $\frac{1}{4}$	5 $\frac{1}{4}$	7 x 10	1	7
7463	18.00	8 x 12	2	100	8 $\frac{1}{4}$ x 12 $\frac{1}{4}$	6	8 x 12	1	10
7464	21.00	10 x 16	2	150	10 $\frac{1}{4}$ x 16 $\frac{1}{4}$	6	10 x 16	1	17
SEMI-FLUSH TYPE									
7465	36.00	12 x 12	2	150	11 $\frac{1}{4}$ x 11 $\frac{1}{4}$	6	11 x 11	1	13
7466	56.50	12 x 24	4	300	11 $\frac{1}{4}$ x 24 $\frac{1}{4}$	6	11 x 24	1	24

ENCLOSING GLOBES



The Keystone



The Seville



The Pilgrim

The "Keystone," being smart and streamlined in appearance, will meet the popular demands of modern lighting. It is made from "Monax" glass of high efficiency for general diffuse lighting.

The "Seville" has long been a popular "Monax" brand lighting globe. It is economical, efficient and widely used for all types of general diffuse illumination. This unit has the "Chip Proof" fitter.

Simplicity of design coupled with the high efficiency of "Monax" glass characterizes the "Pilgrim" as an especially desirable globe for general diffuse illumination.

"Monax" is a white glass with excellent diffusing qualities.

Cat. No.	Price Each	Dimensions (Inches)			*Lamp Position Above (ins.)	Suggested Wattage	Standard Package	
		Diameter	Depth	Fitter			Quantity	Weight
"KEYSTONE"								
816660	1 80	9 $\frac{1}{4}$	6 $\frac{9}{16}$	4	1 $\frac{1}{2}$	75	8	20
816670	3.40	12 $\frac{1}{4}$	8 $\frac{3}{16}$	6	1 $\frac{1}{2}$	100	4	19
816680	4.25	14 $\frac{1}{4}$	9 $\frac{3}{4}$	6	1 $\frac{1}{2}$	150	2	12
816690	5.50	16 $\frac{1}{4}$	10 $\frac{5}{8}$	6	2	200	2	16
816700	8.60	18 $\frac{1}{4}$	12 $\frac{7}{16}$	6	2	300	1	12
"SEVILLE"								
811190	\$ 1.00	8 $\frac{1}{2}$	5 $\frac{9}{16}$	4	$\frac{1}{2}$	60	12	25
813160	1.90	10	6 $\frac{1}{2}$	4	$\frac{1}{2}$	75	8	20
813170	3 00	12	7 $\frac{3}{4}$	6	1	100	4	18
813190	3.50	14	9	6	1	150	3	17
813200	4 40	16	10 $\frac{1}{4}$	6	1	200	2	17
813220	7 50	18	11 $\frac{3}{8}$	6	2	300	1	13
813230	11 00	20	12 $\frac{3}{4}$	8	2	500	1	17
"PILGRIM"								
812980	2 55	10 $\frac{7}{16}$	8 $\frac{5}{16}$	4	$\frac{1}{2}$	75	4	14
812990	3.25	12	9 $\frac{3}{16}$	6	$\frac{1}{2}$	100	2	11
813000	4 30	14	10 $\frac{1}{2}$	6	1	150	2	13
813010	5 50	16	11 $\frac{3}{4}$	6	1 $\frac{1}{2}$	200	2	15
813020	8 60	18	13 $\frac{3}{16}$	6	1 $\frac{1}{2}$	300	1	14

*Lamp Position—Represents the distance in inches of lamp contact above the plane of the fitter screws when using suggested wattage. All prices are for Standard Package Quantities.

ENCLOSING GLOBES



The Clipper



The Trojan



The Juno

The "Clipper" is available in two types of glass. Silvaglo — a white opal glass of high efficiency, for direct lighting; L.S.B. (Low Surface Brightness)— an indirect glass, having a clear upper portion, and a dense white lower portion.

The Ivanhoe Trojan distributes diffused light both above and below the mounting plane. The

light density Genco glass produces pleasing, delightful illumination in all directions without sharp shadows or annoying glare.

The contour of the Juno is a desirable variation from the typical enclosing globe and is designed for efficient distribution and minimum brightness.

Cat. No.	Price † Each	Dimensions (Inches)			Lamp Wattage	Standard Package	
		Diameter	Depth	Fitter		Quantity	Weight
"CLIPPER"†							
12176X9	\$1 35	9 ³ / ₈	6 ¹ / ₄	4	100	12	34
12176X12X4	3 00	12 ³ / ₈	7 ³ / ₈	4	100-150	4	18
12176X12X6	3 00	12 ³ / ₈	7 ³ / ₈	6	100-150	4	18
12176X14	3.90	14 ³ / ₈	8 ³ / ₈	6	200	4	25
12176X16	5.75	16 ¹ / ₄	9 ⁵ / ₈	6	200-300	2	20
12176X18	8.90	18 ¹ / ₄	10 ³ / ₈	6	300-500	1	15
12176X20	15.30	20 ¹ / ₄	14	6 or 8	500	1	18
IVANHOE "TROJAN"							
5264X9	1.40	9	5 ⁷ / ₈	4	60-100	12	28
5264X10	2.10	10	6 ¹ / ₂	4	100-150	4	12
5264X12X4	3.25	12	7 ⁷ / ₈	4	100-150	4	17
5264X12X6	3.25	12	7 ⁷ / ₈	6	100-150	4	17
5264X14	4.20	14	9	6	150-200	2	11
5264X16	6.15	16	10 ¹ / ₄	6	200-300-500	2	13
5264X18X6	9.50	18	11 ¹ / ₈	6	300-500	1	10
5264X18X8	9.50	18	11 ¹ / ₈	8	300-500-750	1	10
IVANHOE "JUNO"							
5243X9	1.40	9	6 ¹¹ / ₁₆	4	60-100	12	28
5243X12X4	3.25	12	7 ¹ / ₂	4	100-150	4	17
5243X12X6	3.25	12	7 ¹ / ₂	6	100-150	4	17
5243X14	4.20	14	8 ⁵ / ₈	6	150-200	2	11
5243X16	6.15	16	9 ⁹ / ₁₆	6	200-300-500	2	13
5243X18	9.50	18	10 ¹³ / ₁₆	8	300-500	1	10

The Clipper is designed for maximum efficiency when the lamp filament is centered in the plane of the middle ornamental ring, at the largest diameter of the globe.

†When ordering the Clipper, specify type of glass.

‡Prices applying to the Clipper are for Silvaglo glass. L.S.B. glass is available at extra cost.

All prices are for Standard Package Quantities.

MISCELLANEOUS GLASSWARE



REFLECTORS FOR FLOOR AND STUDY LAMPS

Cat. No.	Price Each	Lamp Watts	Dimensions (Inches)			Std Pkg	
			Diam	Depth	Fitter	Qty	Wt
820120	\$0.60	100	8	5 $\frac{3}{4}$	2 $\frac{1}{4}$	6	10
824160	0.85	100 200 300	10	5 $\frac{3}{8}$	2 $\frac{7}{8}$	6	15



KITCHEN GLOBE

Cat. No.	Price Each	Dimensions (Inches)			Std Pkg	
		Diam	Depth	Fitter	Qty	Wt
820018-D387	\$0.95	8	7	4	8	22



BALL GLOBES

Made in the following types of glass:

1. Monax—A light density, highly diffusing opal glass.
2. CRI—Crystal, roughed inside.
3. Ruby—A light density, clear red glass.



BOWLS—SILVAGLO GLASS

Straight Side, Flat Bottom

Cat. No.	Price Each	Dimensions (Inches)		Std Pkg	
		Diameter	Depth	Qty	Wt
11550 x 8	\$ 1.75	8	3	6	13
11550 x 10	2.80	10	3 $\frac{1}{4}$	6	15
11550 x 12	3.85	12	4 $\frac{3}{4}$	5	29
11550 x 14	5.00	14	5 $\frac{1}{4}$	4	25
11550 x 16	6.70	16	6	3	25

All bowls drilled $\frac{1}{2}$ -in. hole in bottom.

BALL GLOBES

MONAX		C.R.I.		RUBY		Dimensions (Inches)		Standard Package	
Cat. No.	Price Each	Cat. No.	Price Each	Cat. No.	Price Each	Diameter	Fitter	Quantity	Weight
823200	\$0.95	.....	.....	B-2069X6X3 $\frac{1}{4}$	\$1.95	6	3 $\frac{1}{4}$	24	26
.....	.....	.....	.....	B-2069X7X3 $\frac{1}{4}$	2.55	7	3 $\frac{1}{4}$	12	19
.....	.....	.....	.....	B-2069X7X4	2.55	7	4	12	19
823220	1.65	.....	.....	B-2069X8X4	3.10	8	4	12	24
800080	2.45	B-2069X10X4	\$2.80	.....	.....	10	4	8	26
800060	2.45	B-2069X10X5	2.80	.....	.....	10	5	8	26
800070	2.45	B-2069X10X6	2.80	.....	.....	10	6	8	26
800020	3.90	B-2069X12X6	4.10	.....	.....	12	6	2	12
800190	3.90	B-2069X12X8	6.10	.....	.....	12	8	2	12
800090	4.90	B-2069X14X6	5.60	.....	.....	14	6	1	10
800120	4.90	.....	.....	.....	.....	14	7	1	10
800140	4.90	B-2069X14X8	5.60	.....	.....	14	8	1	10
800200	7.10	B-2069X16X6	7.10	.....	.....	16	6	1	14
800040	7.10	B-2069X16X8	7.10	.....	.....	16	8	1	14

Note: When ordering Ball Globes, specify type of glass and size.
All prices are for Standard Package Quantities.

HANGERS



No. M-122-123
MO-123



No. M-221
MO-221



No. M-10
M-219



Pendant



Semi-Close



Ceiling

SCREW FITTER TYPE

Suspension Hangers

Close-up canopies have knockout for canopy switch. Wired complete with porcelain socket, strap, bolts and knurled nuts.

Finish, statuary bronze. Overall length, 30 inches.

Ceiling Fixtures

Complete with porcelain socket, screws and nuts. No. M-221 and MO-221 supplied with outlet box strap. No. M-10 and M-219 do not require strap.

For available finishes, see tabulation below. M-10 in white enamel is also available with pull-chain socket.

SAFETY FITTER TYPE

Safety hangers are easy to hang and are permanently safe. They eliminate the possibility of globes falling, no matter how severe the vibration may be.

Three types of safety hangers are available: Swivel Stem Pendant, Ceiling, and Semi-Close. All types are similar in contour, and will match up with each other when used in the same installation.

All hangers are wired, complete with socket. Ceiling and Semi-Close types have outlet box strap, screws and knurled nuts. All canopies provided with knockout for canopy switch.

Finished brushed chrome or statuary bronze.

Cat. No.	Price Each			Type	Socket	Fitter (Inches)	Overall Dimen (In.)		Std Pkg	
	Bronze	White Enamel	Brushed Chrome				Length	Canopy Diameter	Qty	Wt
SCREW FITTER TYPE*†										
M-122	\$1.30	....	....	Suspension	Med.	4	30	6	1	3
M-123	1.30	....	....	Suspension	Med.	6	30	6	1	3
MO-123	2.25	....	....	Suspension	Mog.	6	30	6	1	3
M-219	.75	\$0.55	....	Ceiling	Med.	3 1/4	2	6 1/4	1	1
M-10	.75	.55	\$1.05	Ceiling	Med.	4	2	6 1/4	1	1
▲M-10P.C.	....	1.15	....	Ceiling	Med.	4	2	6 1/4	1	1
M-221	1.15	1.15	1.70	Ceiling	Med.	6	5	5 1/2	1	2
□MO-221	2.20	....	2.90	Ceiling	Mog.	6	5	5 1/2	1	2
SAFETY FITTER TYPE*‡										
M-1243	\$4.10	....	\$4.50	Pendant	Med.	4	30	5 1/4	2	6
M-1242	4.30	....	4.75	Pendant	Med.	6	30	6 3/8	2	6
MO-1242	4.70	....	5.15	Pendant	Mog.	6	30	6 3/8	2	6
M-1239	3.40	....	3.80	Ceiling	Med.	4	5 3/4	5 1/4	2	4
M-1238	3.60	....	4.00	Ceiling	Med.	6	6 5/8	6 3/8	2	4
MO-1238	4.00	....	4.40	Ceiling	Mog.	6	6 5/8	6 3/8	2	4
M-1245	3.80	....	4.20	Semi-Close	Med.	4	9 1/2	5 1/4	2	5
M-1244	4.00	....	4.40	Semi-Close	Med.	6	10 1/2	6 3/8	2	5
MO-1244	4.30	....	4.75	Semi-Close	Mog.	6	10 1/2	6 3/8	2	5

*When ordering, specify finish required.

†For additional length chain and wire, add \$0.40 per foot or fraction.

‡For additional length rod hanger, add \$0.60 per foot or fraction.

▲Pull-chain socket.

□Not recommended for use with Clipper glassware.

EXIT LIGHTS



No. 3480



No. 3481

Available in two types, for flush mounting or surface mounting. Crystal glass, red lettering on black background. Lettering is 6 inches high. Boxes are made of 20-gauge steel and have suitable number of half-inch knockouts on all sides. Equipped with one medium base porcelain socket. Finished aluminum inside, bronze outside.

Flush mounting type No. 3480 has trim front with four-screw fastening. Flush plate is chrome-plated.

Surface mounting type No. 3481 can be mounted at either end, at top, at bottom, or at back. Glass is easily removable for relamping.

Cat. No.	Price Each	Description	Box Dimensions (Inches)			Standard Package	
			Width	Height	Depth	Quantity	Weight
3480	\$8.40	Flush Mounting.....	12	8	4	1	6
3481	6.50	Surface Mounting.....	12	8	4	1	5

Available with two sockets at \$2.10 extra per unit.

EXIT GLOBES



No. 5463



No. 5465



No. 5467



No. 5460-5471



No. 5476

Made of ruby glass with white lettering, except No. 5463 which has black lettering.

No. 5460 and 5471 are for ceiling mounting, lettered on two sides. No. 5465 is for wall mounting, lettered on one side only. No. 5467 is for wall mounting, lettered on two sides.

No. 5463 is wedge-shaped, lettered on two sides. For wall mounting; projection $5\frac{1}{2}$ inches. No. 5476 is triangular in shape, lettered on three

sides. For ceiling mounting; overall height $7\frac{1}{4}$ inches.

Cat. No.	Price Each	Dimensions (Inches)		Std Pkg	
		Diameter	Fitter	Qty	Wt
5463	\$4.00	$4\frac{1}{2}$	$3\frac{1}{4}$	1	2
5460	3.00	6	$3\frac{1}{4}$	1	2
5465	2.70	6	$3\frac{1}{4}$	1	2
5467	3.20	6	$3\frac{1}{4}$	1	2
5476	7.50	7	$3\frac{1}{4}$	1	3
5471	4.30	8	4	1	3

CLOSE CEILING FIXTURE



Suitable for many locations in restaurants, stores, theatres, lobbies, rest rooms, corridors and private residences. Consists of a spun metal ceiling pan and an opal glass dish. Finished in satin chrome.

Cat.* No.	Price Each	Diam (Inches)	No. of Sockets	Total Watts	O.A. Depth (Ins.)	Std Pkg	
						Qty	Wt
1162-8	\$6.50	8	2	80	5	1	3
1162-10	9.00	10	2	120	5½	1	4
1162-12	11.00	12	3	180	7	1	7
1162-14	14.00	14	3	300	7½	1	9
1162-16	18.00	16	3	450	8	1	13

*Replacement Glassware No. 11550. See page 158.

LOUVER LIGHT



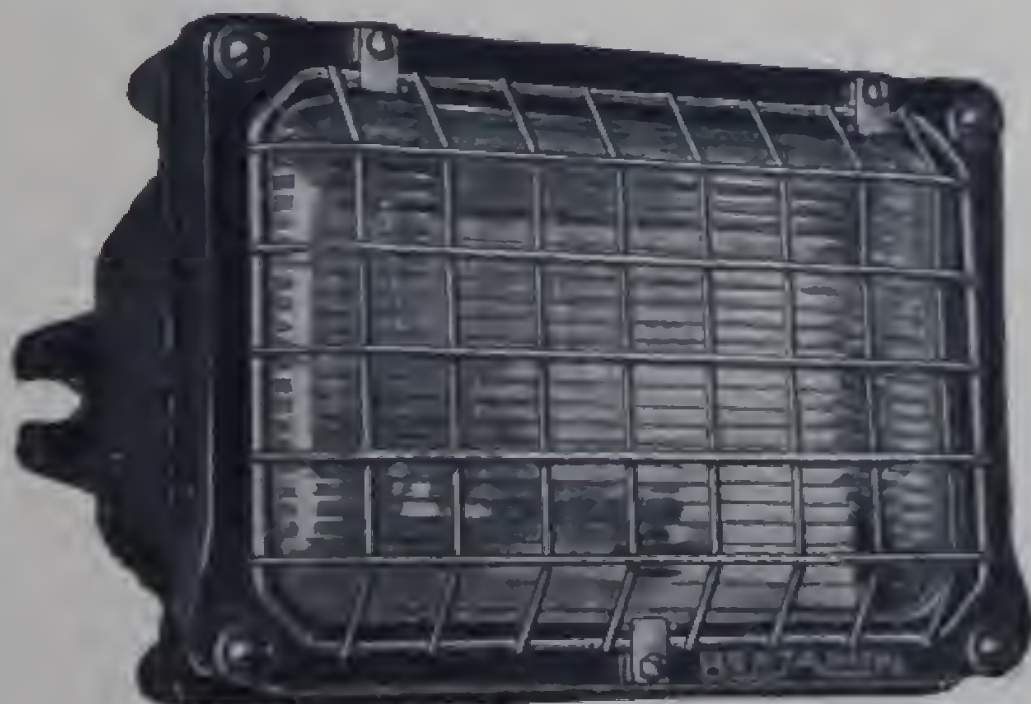
Designed for use as stairway and hall night light in hospitals, public buildings, apartment houses and prisons.

Louver plate is 5 in. square; plaster plate is 6 in. square. Outlet box 4½ in. square by 2½ in. deep.

Finished in white enamel with black enamel plaster plate. Interior of box finished aluminum dip, exterior galvanized. Plaster plate may be set square if box is out of line. Supplied with socket.

Cat. No.	Price Each	Lamp Watts	Socket	Std Pkg	
				Qty	Wt
L-67	\$4.50	25	Medium	1	4

PIT LIGHTING UNIT



A well-built unit, suitable for lighting railroad repair-shop pits, automobile service pits, hydraulic lifts, viaducts, tunnels and under-passes. Can be

mounted on surface by means of lugs, or built into side walls.

Made of cast iron, painted black. Heat-resisting refracting lens is protected by heavy tinned wire guard. Water-tight and dust-proof construction. Reflector is steel, porcelain-enamelled white. Supplied with porcelain medium base socket.

Boxes are tapped at both ends for ½-inch conduit. Available tapped ¾-inch, if specified, at no extra charge.

Cat. No.	Price Each	Lamp Watts	Dimensions (Inches)			Std Pkg	
			Length	Width	Depth	Qty	Wt
5715	\$29.63	100-150	12½	8⅜	6¼	1	24

PORCELAIN WALL AND CEILING FIXTURES



No. 7317-7318 7327-7329



No. 5434



No. 7365-7366



No. 7315-7316 7343-7344



No. 5432



No. 7333



No. 7025-7026

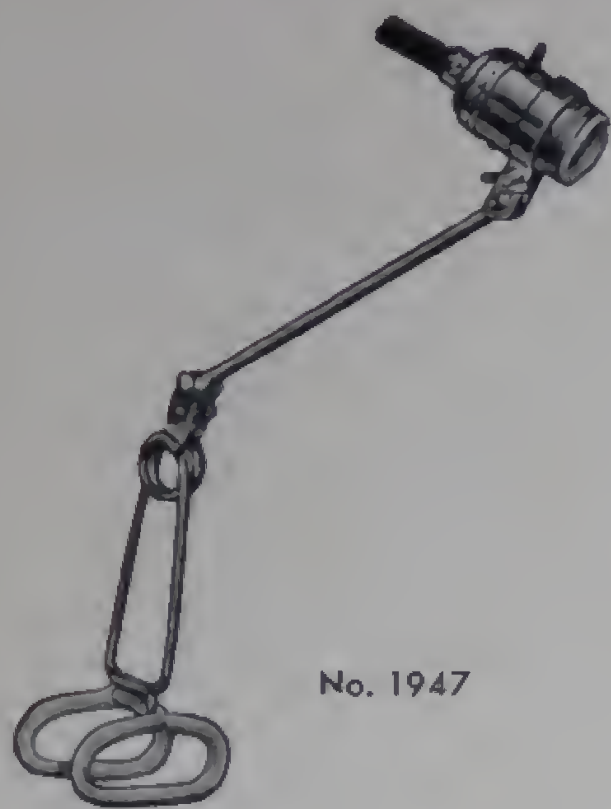
No. 7233-7234
7235-7236

No. 7261-7263

No. 7200-7201
7208-7209

Cat. No.	Price Each	Description	Socket	Lamp Watts	Dimensions (Inches)			Std Pkg
					Fitter	Diameter	Length	
5432	\$0 90	Replacement white opal shade. . . . .	.....	60	2 1/4	3	6	36
5434	90	Replacement white opal shade. . . . .	.....	60	2 1/4	3 1/4	6	24
7025	1 70	White porcelain bracket.	Keyless	60	.....	4 3/4	3 1/2	1
7026	2 20	White porcelain bracket.	Turn-Sw.	60	.....	4 3/4	3 1/2	1
7200	2 50	White porcelain bracket with shade. . . .	Keyless	60	.....	5 1/2	5	1
7201	3 00	White porcelain bracket with shade. . . .	Turn-Sw.	60	.....	5 1/2	5	1
7208	2 70	Black porcelain bracket with shade. . . .	Keyless	60	.....	5 1/2	5	1
7209	3 20	Black porcelain bracket with shade. . . .	Turn-Sw.	60	.....	5 1/2	5	1
7233	3 75	White porcelain bracket with shade. . . .	Keyless	60	.....	4 1/2 x 7 1/2	7 1/2	1
7234	4 20	White porcelain bracket with shade. . . .	Pull-Chn.	60	.....	4 1/2 x 7 1/2	7 1/2	1
7235	4 20	As 7233, but with convenience outlet. . .	Keyless	60	.....	4 1/2 x 7 1/2	7 1/2	1
7236	4 60	As 7234, but with convenience outlet. . .	Pull-Chn.	60	.....	4 1/2 x 7 1/2	7 1/2	1
7261	5 35	White porcelain with shade; two sockets	Keyless	2-60	.....	4 3/4 x 11	5 1/4	1
7263	5 70	Black porcelain with shade; two sockets	Keyless	2-60	.....	4 3/4 x 11	5 1/4	1
7315	1 10	White porcelain holder.	Keyless	.....	2 1/4	.....	.....	1
7316	1 35	White porcelain holder.	Pull-Chn.	.....	2 1/4	.....	.....	1
7317	1 35	White porcelain holder.	Keyless	.....	3 1/4	.....	.....	1
7318	1 60	White porcelain holder.	Pull-Chn.	.....	3 1/4	.....	.....	1
7327	1 35	Brown porcelain holder.	Keyless	.....	3 1/4	.....	.....	1
7329	1 35	Black porcelain holder.	Keyless	.....	3 1/4	.....	.....	1
7333	1 20	White porcelain ceiling light.	Keyless	60	.....	5 1/2	2 5/8	1
7343	1 35	White porcelain holder.	Keyless	.....	4	.....	.....	1
7344	1 60	White porcelain holder.	Pull-Chn.	.....	4	.....	.....	1
7365	2 15	White porcelain bracket with shade	Keyless	60	.....	5 1/4	8	1
7366	2 40	White porcelain bracket with shade	Pull-Chn.	60	.....	5 1/4	8	1

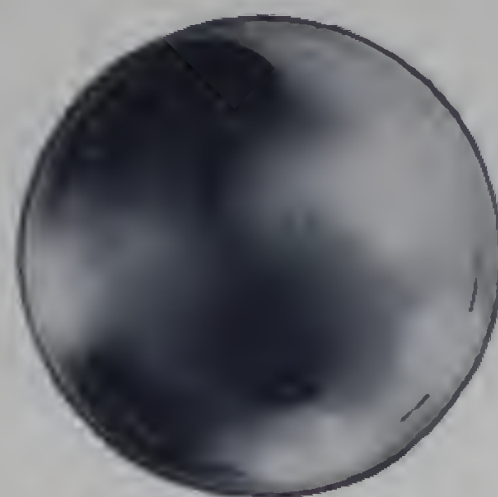
EQUIPMENT FOR R-40 AND PAR-38 LAMPS



No. 1947



No. ES40A, ES40C



No. HRL45, SL45



No. 30R



No. 3948



No. 3955

No. 3948

Indoor stand for R-40 and PAR-38 lamps. Adjustable to any angle. Finished in polished chrome. Complete with shell push-through socket, and 6 foot cord and attachment cap.

No. 3955

Weatherproof stand for outdoor use with PAR-38 lamps. May be adjusted to any angle. Finished in copper with cadmium plated trunnion support. Supplied with porcelain socket, 6 foot cord and attachment cap.

Coloured Lenses

Available in standard non-heat resisting glass for indoor use, or in heat resisting glass for outdoor use. Four colours are available; Green, Amber, Red and Blue.

Lens Holder Rings

Two types are available; ES40A for PAR-38 lamps, and ES40C for R-40 lamps.

No. 30R—Glare Shield

Prevents direct viewing of PAR-38 lamp, and

concentrates its beam. Interior is finished in dead-black, exterior polished aluminum.

No. 1947—Clamp-Type Holder

A handy, inexpensive holder which clamps easily to chairs, beds, tables, etc. Extension arm 6½" long; has ball joints at each end for complete flexibility. For use with reflector type R-40 lamps. Supplied with 6-foot rubber cord and attachment cap.

Cat. No.	Price Each	Description	Std Pkg	
			Qty	Wt
30R	\$2.30	Glare Shield for PAR-38 lamps	1	½
1947	2.00	Clamp-type Holder.....	1	1
3948	2.50	Indoor Stand.....	1	1½
3955	5.85	Weatherproof Stand for PAR-38 lamps.....	1	2
ES40A	.90	Lens Holder Ring for PAR-38 lamps....	1	½
ES40C	.90	Lens Holder Ring for R-40 lamps.....	1	½
*HRL45	.90	Heat Resisting Lenses	1	½
*SL45	.30	Standard Lenses....	1	½

*Specify colour desired: Green, Amber, Red or Blue.

"SPOT-O-LITE" LINE FOR R-40 AND PAR-38 LAMPS



No. 5571



No. 5565



No. 5574



No. 5576



No. 5560



No. 5570



No. 5575

This line of indoor type spotlights provides many answers to the problem of highlighting special displays and show windows.

Construction

The heavy cast iron base can be screwed or bolted to any flat surface, or if desired will attach directly to 3 $\frac{1}{4}$ " or 4" outlet boxes. All types except No. 5576 are equipped with a sturdy universal swivel. A streamlined housing finished in brushed aluminum is furnished with all units except No. 5560. Supplied with porcelain socket and wired with leads only, except No. 5560 and 5570 which are supplied with 6-foot rubber cord and plug.

No. 5560—Spotlight Stand

Ideal for economically highlighting special displays or show windows. Also suitable for use with reflector type heat-lamps, sun-lamps and photo-floods.

No. 5565—Down-Lighting Unit

A ceiling mounted unit for spotlighting special merchandise.

No. 5570—Spotlight Stand

An exceptionally smart, streamlined stand for highlighting displays.

No. 5571—Suspension Type Spotlight

For highlighting special merchandise on counters or in shadow boxes. Standard over-all length, 30 inches.

No. 5574—Suspension Type Spotlight

Similar to No. 5571 except that swivel is located at side of housing, to permit highlighting of shadow boxes and vertical displays.

No. 5575—Wall Mounting Spotlight

Although designed as a wall bracket type, this spotlight with truncated housing is suitable for many applications.

No. 5576—Flexible Arm Spotlight

Designers, architects and up-to-the-minute store owners will find many uses for this unit. The 15" flexible arm permits the user to create his own styles to suit a variety of purposes.

Accessories

All streamlined housings except the truncated type (No. 5575) will accommodate No. 5587 concentric ring louver, with or without No. 5586 coloured lens. (See next page).

Cat. No.	Price Each	Standard Package	
		Qty	Wt
5560	\$ 4 50	6	9
5565	9 00	1	2
5570	9 00	1	2
5571	11 00	1	3
5574	11 00	1	3
5575	9 50	1	2
5576	10 00	1	3

RECESSED "SPOT-O-LITES" FOR R-40 LAMPS



No. 5548



No. 5580



No. 5581



No. 5582



No. 5583

No. 5548—Adjustable Enclosed Down-Light

An excellent unit for highlighting displays. The square face plate is 12" wide for incorporation in continuous rows of recessed fluorescent fixtures. The lamp is inserted in gimbals which permit a 30 degree adjustment in any direction. Face plate finished in white baked enamel.

No. 5580—Adjustable Enclosed Down-Light

For flush mounting where ceiling depth is limited. Gimbals permit 30 degree adjustment. Ceiling ring finished in polished chrome.

No. 5581—Adjustable Open Down-Light

For flush mounting where ceiling depth permits free circulation of air. Gimbals permit 30 degree adjustment. Ceiling ring finished in polished chrome.

No. 5582—Fixed Enclosed Down-Light

For flush mounting where ceiling depth is limited. Ceiling ring finished in polished chrome.

No. 5583—Fixed Open Down-Light

For flush mounting where ceiling depth permits free circulation of air. Ceiling ring finished in polished chrome.

Cat. No.	Price Each	Dimensions (Inches)		Standard Package	
		Opening	O.A. Depth	Qty	Wt
5548	\$24.00	10 x 10	8	1	5
5580	20.00	7 1/2	9	1	5
5581	8.00	6 3/4	7	2	5
5582	11.00	5 3/4	8	1	3
5583	4.50	5 3/4	8	2	4

SPOT-O-LITE ACCESSORIES



No. 5584



No. 5585



No. 5586



No. 5587

No. 5584—Clip-On Holder.

Suitable for all recessed Spot-O-Lites. May also be attached to R-40 lamps when used in No. 5560 spotlight stand. Accommodates No. 5585 concentric ring louver and No. 5586 coloured lens, either in combination or separately.

No. 5585—Concentric Ring Louver

Provides good lamp shielding. Used with No. 5584 holder.

No. 5586—Coloured Lens

For dramatizing displays or creating the seasonal touch. Used with No. 5584 holder or No. 5587 louver. Available in red, amber, green or blue.

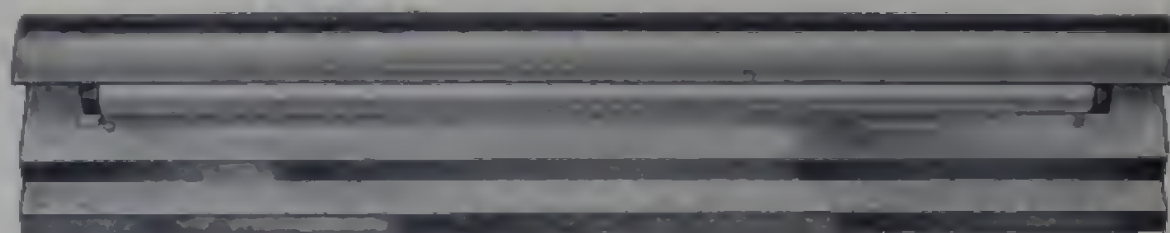
No. 5587—Concentric Ring Louver

For use with all streamlined housings (except truncated type No. 5575) shown on previous page. Held flush with outer edge of housing by spring steel clips. No. 5586 coloured lens can be used with this louver.

Cat. No.	Price Each	Standard Package	
		Qty	Wt
5584	\$1.40	3	5
5585	1.25	6	5
5586	.60	12	5
5587	2.00	6	5

When ordering No. 5586 coloured lens, specify whether red, amber, green or blue colour is required.

LUMILINE BRACKETS



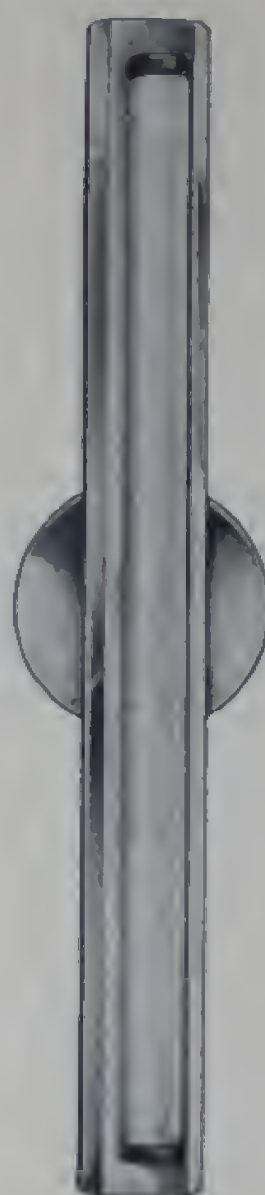
No. R-3160, R-3162



No. LB-1200, LB-1800



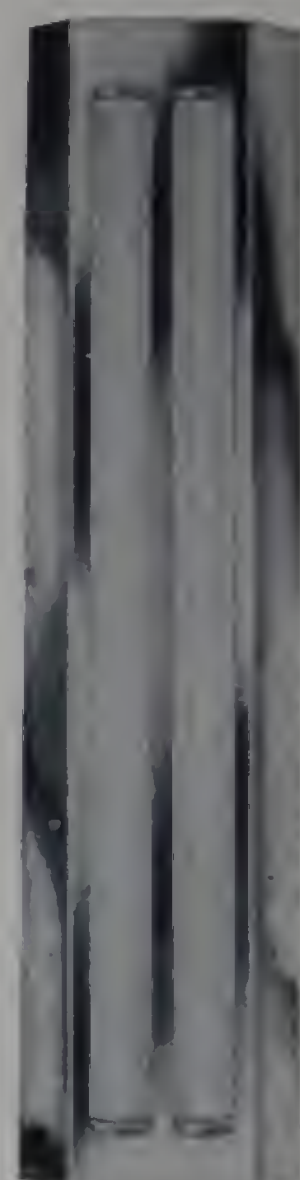
No. 3172



No. K-4700



No. 6005



No. LB-1800-2

No. LB-1200, LB-1800

A very shallow fixture, only $\frac{7}{8}$ " deep, suitable for surface mounting. Used extensively on either side of mirrors, and in restaurants and hallways, where the effect of height is desired. Bevelled sides and ends. Finished in polished chrome. Suitable for mounting over No. 1104 switch box. Where an octagon outlet box is used, a special plate to cover the box will be supplied, on request, at no extra charge. No. LB-1800-2, accommodating two lamps, is similar to No. LB-1800 except for width.

No. 3172

A surface mounting bracket with curved ends, recommended for use on either side of round mirrors or other modern curving type of architecture. Finished in polished chrome.

No. K-4700

A quality design with its narrow length and recessed round back-plate ($4\frac{1}{4}$ " diameter) for covering $3\frac{1}{4}$ " or 4" outlet box. Finished in polished chrome.

No. 6005

Consists of a plain metal box for use under kitchen cupboards, in coves, or any other concealed areas. Supplied with $\frac{1}{2}$ " knockouts in back and ends. Finished in baked white enamel.

No. R-3160, R-3162

Reflector type bracket for surface mounting over bathroom mirrors. Suitable for directing light to special displays, bulletin boards, etc. Finished in polished chrome.

Cat. No.	Price Each	Lamp L'gth (Ins.)	Lamp Watts	Dimensions (Inches)		
				Length	Width	Depth
LB-1200	\$4.20	12	40	14	$2\frac{3}{4}$	....
LB-1800	4.70	18	60	20	$2\frac{3}{4}$	....
LB-1800-2	7.00	18	2-60	20	$4\frac{1}{2}$	....
K-4700	5.60	18	60	19	2	....
R-3160	5.60	12	40	14	$3\frac{1}{2}$	3
R-3162	6.50	18	60	20	$3\frac{1}{2}$	3
3172	5.20	18	60	20	$3\frac{1}{2}$	....
6005	3.20	18	60	20	$1\frac{3}{4}$	$1\frac{1}{4}$

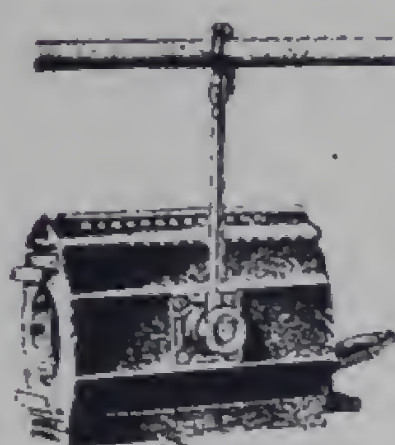
STAGE-LIGHTING EQUIPMENT



MS-1500



B-450



MH-1000



OH-1000



H-150

B 450

Perkins Baby Spot, fitted with 4½" condenser for maximum illumination. Fitted with easy change slide type colour frame.

C 450

Colour Frame for B450 Baby Spot.

MH 1000

Perkins Incandescent Spot-Flood Lamp, with 6" lens, for use with 500-W. to 2000-W. lamp. Made of heavy iron, mounted on aluminum casting, and is completely air cooled, to prolong lamp life. Easy focusing with holder for metal colour frames. Complete with hanger.

MS 1500

Perkins Incandescent Spot and Flood Lamp. Consists of MH 1000 Spot Hood mounted on heavy duty floor stand. Complete with 25' cable and connector.

OH 1000

Perkins 1000-1500-W. Flood type Olivette, for use where professional type stage lighting is required, with grooves for colour frames, equipped complete with hanger.

OS 1500

Perkins 1000-1500-W. Flood type Olivette, hood mounted on telescopic pipe stand with large wheel

base that prevents upsetting. Can be raised, lowered and tilted, and despite the exceptional ventilation there are no light leaks. Furnished with 25' cable and connector.

H 150

Colour Wheel, 6" hole, 6 space, 5 colours inserted, for use with MS and MH type units.

F 1820

Colour Frame, wood, 18" x 20", made in two parts, will not split, for Nos. OS 1500-OH 1000 Floods.

1820

Colour Frame, metal, as above.

S 1000

Colour Frame, 6" x 8", 6" hole, single colour frame, for use with MS 1500-MH 1000 Spots.

Cat. No.	Price Each	Standard Package	
		Qty	Wt
B450	\$20.50	1	8
C450	1.00	1	1
F1820	2.00	1	5
H150	15.50	1	6
MH1000	73.00	1	18
MS1500	97.00	1	45
OH1000	40.00	1	18
OS1500	62.00	1	45
S1000	1.30	1	2
1820	3.20	1	5

DAZOR "FLOATING" LAMPS



Bracket Model



Desk Model

Clamped to
horizontal
surfaceScrewed to
slanting
surfaceScrewed to
vertical
surface

Universal Model

Float your light exactly where you want it . . . as quickly and easily as you move your arm. The Dazor Floating Lamp stays put without further adjustment or locking. Raise, lower, push or pull it; swing it through an arc; twist or turn it at an angle—wherever you stop the reflector it "stays put" until you change the position. The Dazor floating principle is entirely different from that of any other lamp, providing true finger-tip control for maximum convenience. It is the answer to efficient localized lighting—either fluorescent or incandescent.

Floating Arm

A strong spring force, acting through a shifting fulcrum and parallelogram on both sections of the double-arm, equalizes the varying forces exerted by the arm, thereby balancing the arm in any position. This is a patented feature found only in Dazor Floating Lamps. The spring mechanism is entirely enclosed within a housing near the base. A choice of four bases, suitable for virtually any application on walls, drawing boards, desks or floors is available.

Universal Model

With this combination base the lamp may be clamped or screwed to any surface—horizontal, sloping or vertical. The base is provided with three holes for mounting with screws; when thus screwed in place, the stud, clamping lug and wing nut are not used. A base pad, to prevent the scarring of fine surfaces, and wood screws for mounting are furnished with each unit.

Pedestal Model

A heavy iron base, 12" in diameter, gives stability to this portable floor-type Dazor lamp. Pedestal measures 39" from floor to arm-hinge at top of pedestal. This model is especially adapted to offices, doctors' quarters and homes.

Desk Model

The weighted base of this Dazor Lamp does not require fastening down, permitting it to be placed anywhere on a flat-top desk, table or other horizontal surface; can be moved as desired.

Bracket Model

A goose neck iron bracket forms the base of this Dazor model. Fastened to underside of drawing board by screws, it leaves upper edge of board clear for T-square, instruments or rolled cover.

NOTE: After mounting lamp, the standard that supports the arm should be adjusted to a vertical position; otherwise arm tends to rotate to low point of arc.

Finish

The standard Dazor finish is statuary bronze baked enamel. Inner surfaces of reflectors are white baked enamel.

CSA Approval

All Dazor lamps are approved by the Canadian Standards Association, but must not be used in locations where they may be subjected to oil.

DAZOR "FLOATING" LAMPS



Fluorescent Pedestal Model

FLUORESCENT PEDESTAL MODEL

Using Two 15 Watt Fluorescent Lamps

The Fluorescent Pedestal Model is an all-purpose floor lamp, especially suitable for shops, physicians' offices, studios and homes. It is handy in the sick-room for nurses' use, or as a patient's night lamp. Reflector is 18 $\frac{3}{4}$ inches long. Ballast is installed in the base.

Equipped with 2-conductor No. 18 POSJ midrip brown cord, extending 8'9" from the base, and a No. 7701 rubber cap.

FLUORESCENT UNIVERSAL MODEL

Using Two 15 Watt Fluorescent Lamps

The Fluorescent Universal Model fastens to practically all types of factory or machine shop equipment: lathes, drills, presses, shapers, milling machines, assembly benches, inspection tables. To repair benches in jewellery, engraving, radio, typewriter and bicycle shops . . . to tables or walls in dental, medical and chemical laboratories . . . to drawing boards . . . to business machines, desks, tables and files in offices . . . to desks and work benches in private homes and basements. The 24" arm extension is recommended for average-size benches, machines, desks and stands; the 34" for drawing boards, executive desks and large working



Fluorescent Universal Model

areas. Reflector is 18 $\frac{3}{4}$ inches long. Ballast is installed in housing beneath the spring mechanism.

Equipped with 2-conductor No. 18 POSJ midrip brown cord extending 8'9" from the base, and a No. 7701 rubber cap.

FLUORESCENT BRACKET MODEL (Not Illustrated)

Using Two 15 Watt Fluorescent Lamps

The Fluorescent Bracket Model provides convenient, easily directed light for architects, draftsmen and artists. The goose-neck base attaches with screws to under side of drawing board, leaving top of board entirely free of obstruction. T-square may be used along upper edge and board cover may be rolled into hollow of the goose-neck fitting. This base is also adaptable to certain benches and machines. Reflector is 18 $\frac{3}{4}$ inches long. Ballast is installed in housing beneath the spring mechanism.

Equipped with 2-conductor No. 18 POSJ midrip brown cord, extending 8'9" from the base, and a No. 7701 rubber cap.

Cat. No.	Price Each	* Cycles	Power Factor	Arm Ext	Std Pkg	
					Qty	Wt
PEDESTAL MODEL						
P-2234-16	\$52.30	60	95	34"	1	32
UNIVERSAL MODEL						
P-2124-16	34.80	60	95	24"	1	10 $\frac{1}{2}$
P-2134-16	34.80	60	95	34"	1	10 $\frac{1}{2}$
BRACKET MODEL						
P-2434-16	34.80	60	95	34"	1	12

*110 Volt.

DAZOR "FLOATING" LAMPS



Fluorescent Desk Model



Incandescent Desk Model

FLUORESCENT DESK MODEL Using Two 15 Watt Fluorescent Lamps

The Fluorescent Desk Model is portable, requiring no screws or clamps; base is weighted to support the floating arm in any position while resting on any level desk, table or stand. Convenient for flat-top desks of executives, architects, accountants, clerks. For slanting surfaces, such as drawing boards, specify the Universal or Bracket Model. Reflector is 18 $\frac{3}{4}$ inches long. Ballast is installed in the base.

Equipped with 2-conductor No. 18 POSJ midrip brown cord, extending 8' 9" from the base, and a No. 7701 rubber cap.

INCANDESCENT MODELS Using One 40 or 60 Watt Lamp

These lamps have the same broad applications as outlined for the corresponding fluorescent models. They are serving assemblers, inspectors, mechanics and repairmen. They are popular with architects, engineers, draftsmen, artists, chemists, amateur and professional photographers. They have many

uses in offices in connection with adding machines, mimeograph machines, and similar equipment, and in homes. The 24" arm extension is recommended for average-size benches, machines, desks and stands; the 34" for drawing boards, executive desks and large working areas.

Equipped with 2-conductor No. 18 POSJ midrip brown cord, extending 8' 9" from the base for the 24" arm, and 7' 10" for the 34" arm; and a No. 7701 rubber cap.

FLUORESCENT DESK MODEL

Cat. No.	Price Each	* Cycles	Power Factor	Arm Ext	Std Pkg	
					Qty	Wt
P-2324-16	\$44.80	60	95	24"	1	23

INCANDESCENT MODELS

Cat. No.	Price Each	Model	Arm Ext	Std Pkg	
				Qty	Wt
3124-S	\$19.20	Universal	24"	1	6
3134-S	19.20	Universal	34"	1	6
3234-S	37.80	Pedestal	34"	1	29
3324-S	27.00	Desk	24"	1	24
3434-S	19.20	Bracket	34"	1	8

*110 Volts.

DESK AND STUDY LAMPS



No. 7057

No. 7057A

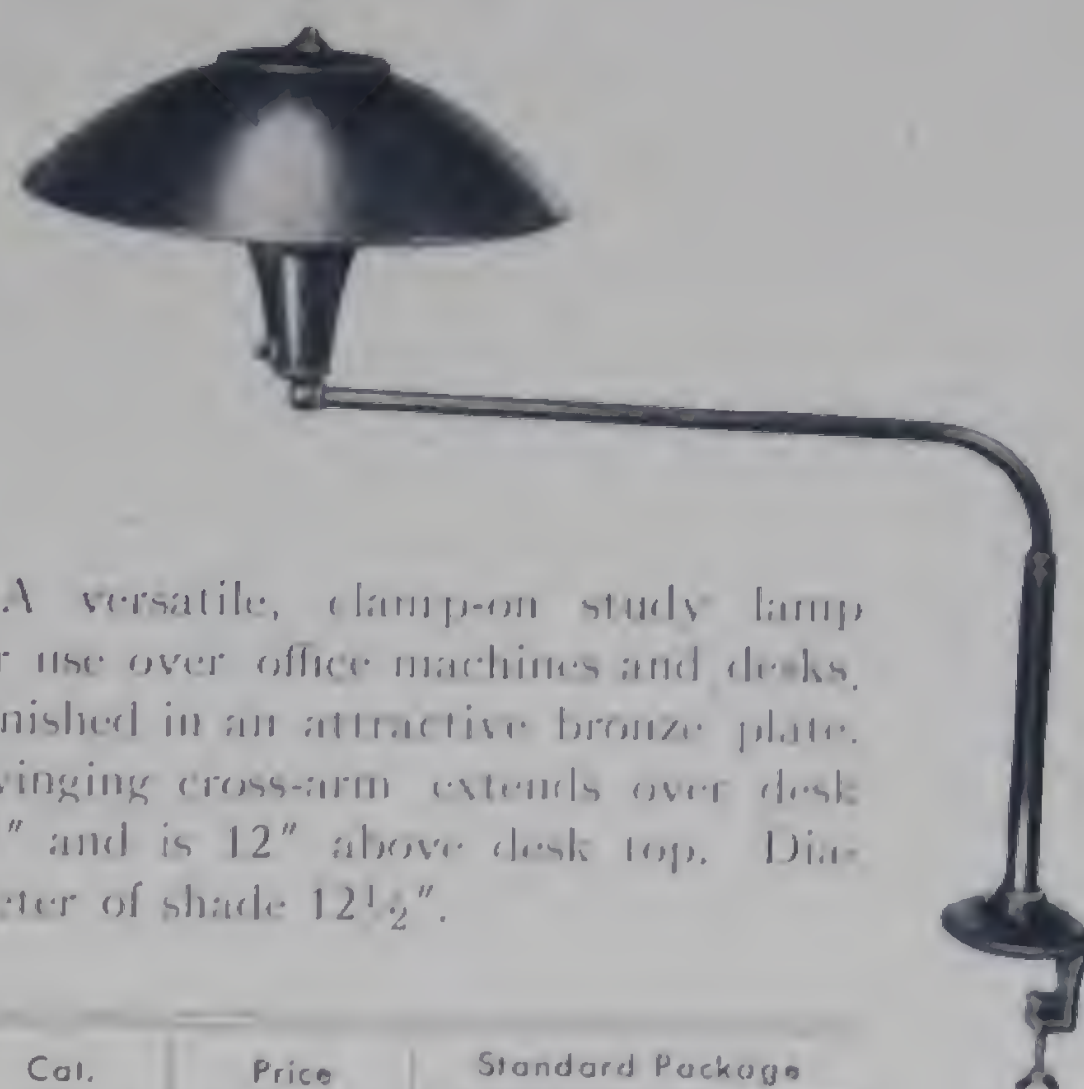
Well made with cast base, 12" flexible arm and steel reflector. Neat appearance, easy to clean, adjustable to any position. Finished in sprayed bronze. Wired complete with push-through socket. Reflectors come in two styles — Rectangular and Parabola.

Cat. No.	Price Each	Lamp Watts	Reflector Style	Standard Package	
				Quantity	Weight
7057	\$4 50	40-60	Parabola	1	6
7057A	5 40	40-60	Rectangular	1	6



An attractive, modern desk lamp. Well constructed and finished in a durable bronze plate. Wired complete with push-through socket and 6-foot rubber covered cord-set.

Cat. No.	Price Each	Standard Package	
		Quantity	Weight
7238	\$14 00	1	8



A versatile, clamp-on study lamp for use over office machines and desks. Finished in an attractive bronze plate. Swinging cross-arm extends over desk 19" and is 12" above desk top. Diameter of shade 12½".

Cat. No.	Price Each	Standard Package	
		Quantity	Weight
7221	\$18 00	1	8



This is a distinctively designed fluorescent desk lamp which will appeal to the most discriminating taste. The generous design of the reflector assures glare-free light over the entire working area.

Sturdily constructed of high-grade materials, finished in bronze plate. Low centre of gravity prevents tipping. Overall height, 15 inches; length of reflector, 19 inches. Supplied wired, complete with low power-factor ballast, manual starting switch, and 6-foot rubber cord and plug.

For 60 cycle, 110-125 volt operation only.

Cat. No.	Price Each	Lamp Watts	Standard Package	
			Quantity	Weight
7446	\$27 50	1-15	1	15

KONDU BRACKETS AND LANTERNS



No. 1084



No. 3480



No. 2778



No. 2678



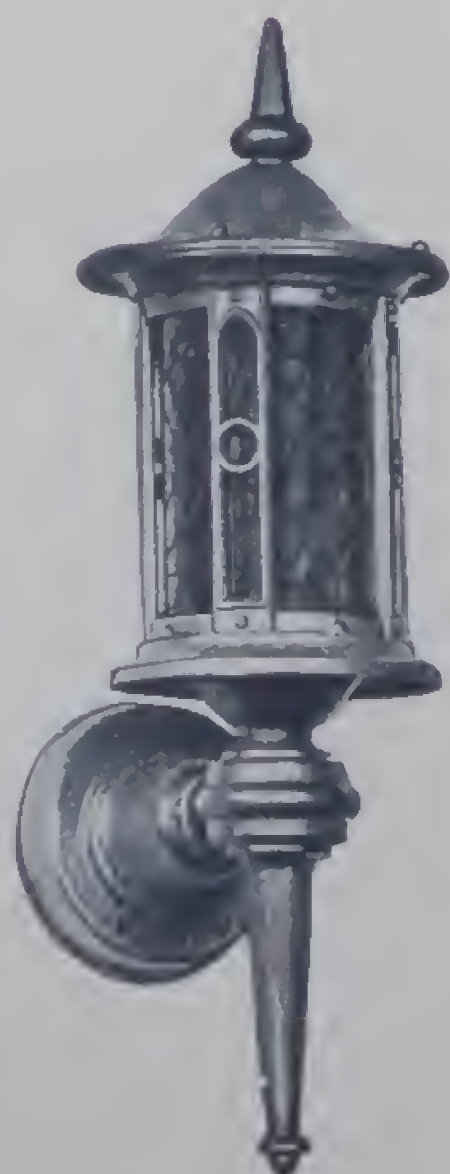
No. 502



No. 503



No. 504



No. 3277



No. 3374



No. 509

KONDU BRACKETS AND LANTERNS



No. 5374



No. 5380

Fabricated from cast sections, this equipment combines sturdy construction and utility, with an appreciation of authentic detail and artistic charm.

ORDERING INSTRUCTIONS

To ensure accurate filling of your order please supply the following information in addition to the catalogue number.

Finish

Brackets and lanterns can be supplied in black, green, swedish iron or bronze finish. If color is not stated black will be supplied.

Material

Made of cast iron. Bronze and aluminum can be supplied as special, prices on application.

List Prices

Prices shown apply to either $3\frac{1}{4}$ ", 4", 5" or 6" holders. State size required.

Glass

Clear pebbled, clear sanded, amber pebbled and amber sanded. Amber opalescent may be supplied if desired, at a slight additional cost. Please state color when ordering. Globes not supplied.

Length Overall

For lantern brackets, is the distance from top of spear to bottom of spear, knob or stem, and in globe brackets, from end of knob or spear to top of globe holders.

Lantern Size

This size is from top of roof to bottom of lantern frame or flange.

Socket Base

Brackets are supplied with $\frac{3}{8}$ " or $\frac{1}{8}$ " standard nipples. If desired $\frac{1}{2}$ " nipples can be supplied.

Wiring

All brackets and lanterns are wired and supplied with sockets. C.S.A. approved.

Cat. No.	Price Each	*Diameter of Holder (In.)	Wall Plate (In.)	Wall to Center (In.)	Size of Lantern (In.)	Overall Height (In.)	Ship. Weight
502	\$ 9.00	$3\frac{1}{4}$, 4, 5 & 6	$6\frac{3}{4}$	9	.....	.....	8
503	5.40	$3\frac{1}{4}$, 4	4 x $8\frac{1}{2}$	$4\frac{1}{4}$	.....	6	4
504	5.40	$3\frac{1}{4}$	$4\frac{1}{2}$ x $6\frac{1}{4}$	$4\frac{1}{4}$	.....	$6\frac{1}{4}$	4
509	13.50	$3\frac{1}{4}$, 4, 5 & 6	$4\frac{1}{2}$ x 9	7	.....	15	10
1084	10.80	.....	.....	$4\frac{1}{2}$ †	$6\frac{3}{4}$ x $12\frac{1}{2}$ †	$12\frac{1}{2}$	5
2678	22.50	.....	$4\frac{3}{4}$ x $9\frac{1}{4}$	$7\frac{1}{4}$	$5\frac{1}{2}$ x 8	15	10
2778	22.50	.....	$4\frac{3}{4}$ x $9\frac{1}{4}$	$7\frac{1}{4}$	$5\frac{1}{2}$ x $8\frac{1}{2}$	$10\frac{1}{2}$	10
3277	21.00	.....	$5\frac{1}{4}$	8	$4\frac{3}{4}$ x 9	20	8
3374	39.00	.....	$5\frac{1}{2}$	8	$7\frac{1}{2}$ x $10\frac{1}{2}$	25	13
3480	60.00	.....	$7\frac{1}{4}$ x $15\frac{1}{2}$	12	10 x $20\frac{1}{2}$	19	19
5374	33.00	.....	$5\frac{1}{4}$ x 6 Δ	.....	$7\frac{1}{2}$ x $10\frac{1}{2}$	36	13
5380	48.00	.....	$5\frac{1}{4}$ x 6 Δ	.....	$9\frac{1}{4}$ x $14\frac{1}{2}$	36	20

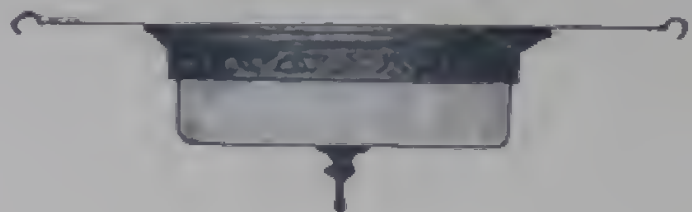
*Where more than one holder diameter is available, specify size required.

†Size of glass panel 6" x $2\frac{1}{2}$ ".

‡Extension from wall.

Δ Canopy size.

THE GOTHIC LANTERN LINE



No. 2520—2521



No. 2518



No. 2516—2517



No. 2519
Weatherproof Outside Wall Lantern

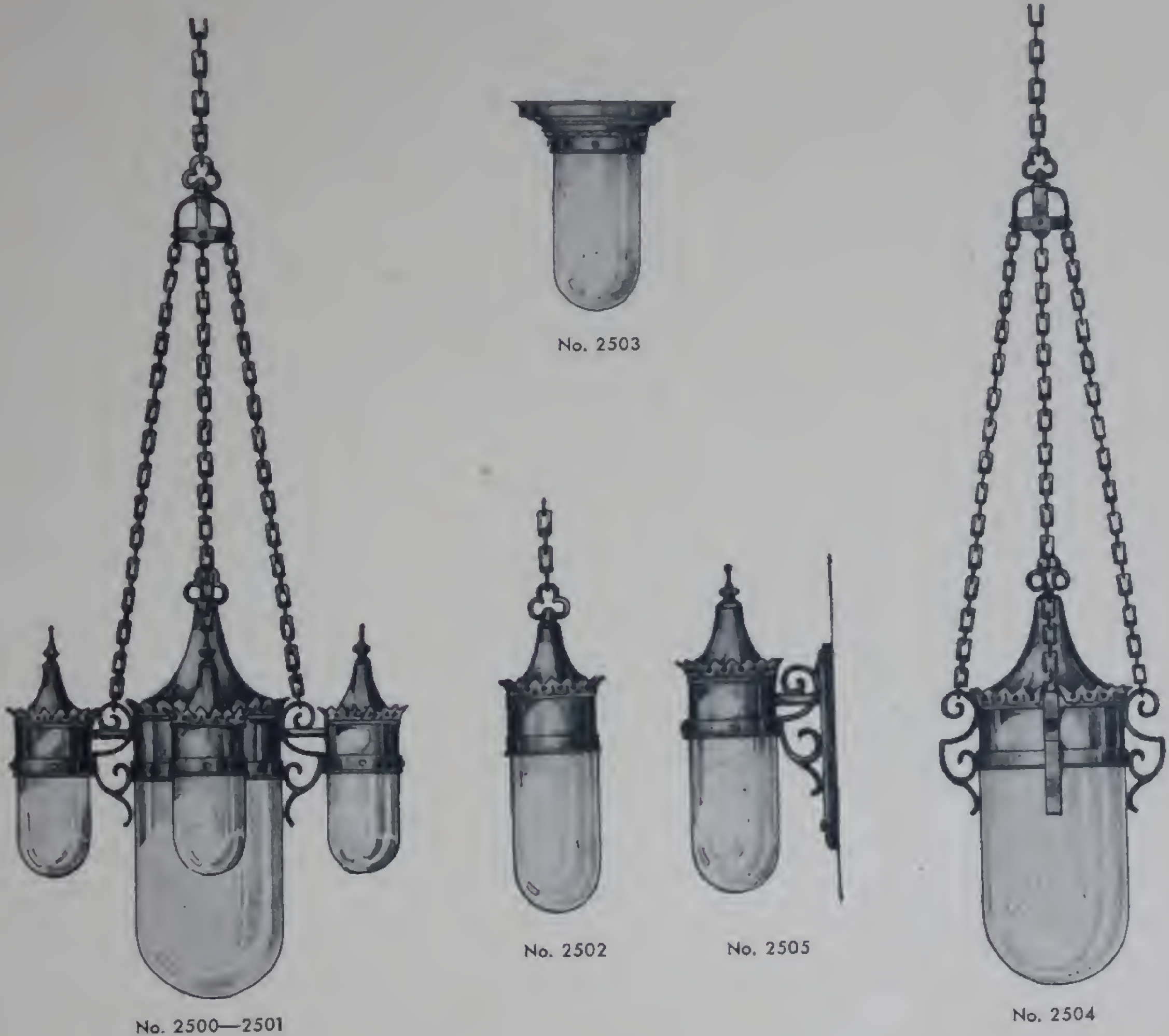
These lanterns are designed to harmonize with formal Gothic architecture. Panels are of amber glass, and metal parts are finished in bronze. No. 2516 and 2517 are equipped with a downlight re-

flector, and louver to prevent direct viewing of the light source. Four 60 watt lamps on a separate circuit provide suitable illumination of the side panels.

Cat. No.	Price Each	Lamp Watts	Approx Dimensions (In.)		Overall Suspension (In.)	Ship. Wt
			Length	Width		
2516	\$240.00	(1)300-(4)60*	31	12	144	60
2517	290.00	(1)500-(4)60*	38	15	144	80
2518	90.00	100-150	19	6	30	25
2519	120.00	100-150	19	6	...	20
2520	15.00	100	5	10	...	8
2521	28.00	200	6	14	...	12

*Two circuits

THE STALACTITE LINE



A tastefully designed line of fixtures for fine church lighting. Glassware is ivory in color. Metal work finished in wrought iron.

Cat. No.	Price Each	Lamp Watts	Approx Dimensions (In.)		Overall Suspension (In.)	Ship. Wt
			Length	Width		
2500	\$180.00	(1)300-(4)60*	28	28	48	50
2501	140.00	(1)200-(4)25*	22	22	48	40
2502	28.00	100-150	19	6	30	10
2503	18.00	100-150	9	6	..	6
2504	44.00	200-300	22	10	48	20
2505	65.00	100-150	24	8	..	12

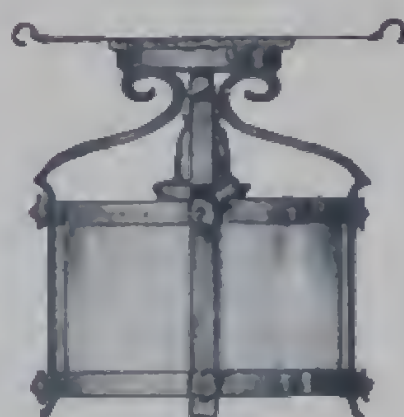
*Two circuits

CANADIAN
GENERAL ELECTRIC

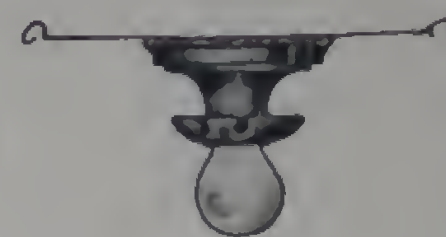
THE CYLINDRICAL LANTERN LINE



No. 2510



No. 2509


 No. 2506
 2507
 2508


No. 2511


 No. 5557
 Outside Wall Lantern

Modest yet fine-appearing fixtures for smaller churches and chapels. Glassware is amber in color, and metal parts are finished bronze. The outside wall lantern is of copper construction.

Cat. No.	Price Each	Lamp Watts	Approx Dimensions (In.)		Overall Suspension (In.)	Ship. Wt
			Length	Width		
2506	\$110.00	(1)500-(3)40*	20	12	60	35
2507	98.00	(1)300-(3)40*	16	10	60	30
2508	64.00	100-150	13	8	60	25
2509	42.00	100	10	10	..	15
2510	46.00	100	9	6	..	15
2511	5.50	40	6	5	..	2
5557	90.00	100	14	6	..	15

*Two circuits.

THE GOTHIC GLASS LINE



No. 2525



No. 2522



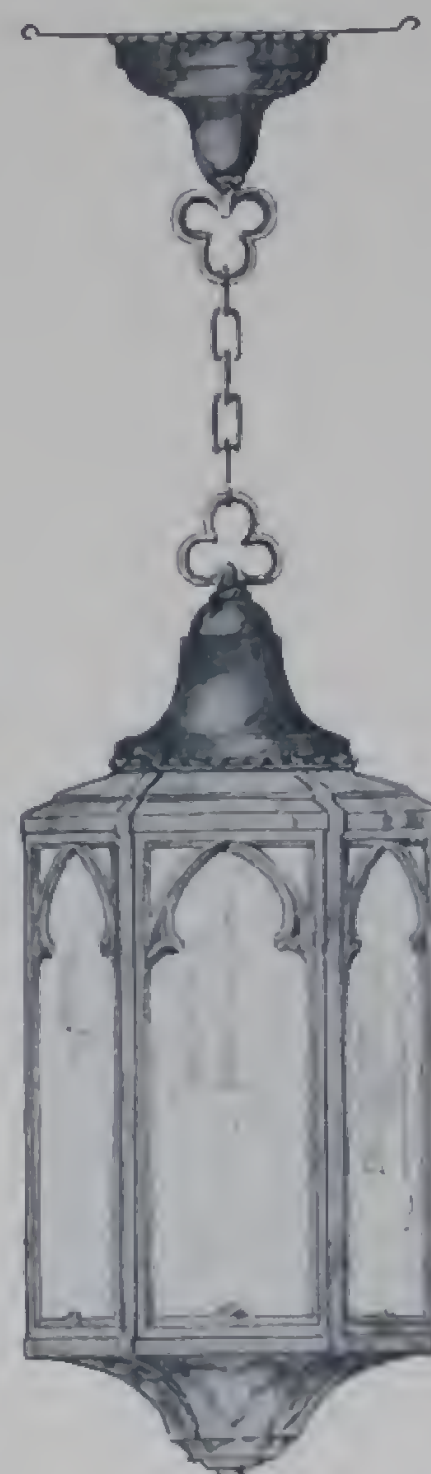
No. 2526



No. 2524



No. 2523
Weatherproof Outside Wall Lantern



No. 2527

These fixtures consist of totally enclosed lighting glassware, decorated to simulate ornamental metal work. They are ideal for churches, chapels, and

public buildings, where both cost and appearance are important. Glassware is ivory in color. All metal parts are finished in handsome wrought iron.

Cat. No.	Price Each	Lamp Watts	Approx Dimensions (In.)		Overall Suspension (In.)	Ship. Wt
			Length	Width		
COMPLETE LANTERNS						
2522	\$24.00	100-150	12	6½	..	10
2523	32.00	100-150	15	6½	..	12
2524	26.00	100-150	16	6½	30	12
2525	36.00	(2) 60	12	13	..	15
2526	90.00	300-500	37	24	48	30
2527	54.00	300-500	24	10½	48	20
REPLACEMENT GLASSWARE						
K5	8.50	60	8	5	..	5
K7	11.00	100-150	12	6½	..	8
K10	28.00	300-500	18	10½	..	12

NEON AND ARGON GLOW LAMPS

NEON GLOW LAMPS

Neon Glow Lamps are low voltage lamps of the gaseous discharge type. They are ideal as indicators for appliances, wiring devices and industrial apparatus because they require little power, can operate on standby battery or generator service, and stand up under shock and vibration.

These lamps glow with a distinctive orange-red color, making the use of colored cover glass unnecessary. They have a dependable long life of approximately 5000 hours, and operate very reliably — when normal life is ended, they do not suddenly fail. Practically no heat is given off, since current consumption is very low.

Neon glow lamps are made in a variety of sizes and wattages to meet every need. They are normally usable on A.C. or D.C. circuits. On Direct Current only one electrode (negative) glows, producing approximately the same light output as the combined electrodes on Alternating Current.

Bayonet Base Lamps (except NE-53)

These lamps are supplied without series resistor in base. External means must be provided to limit current to normal amount. External resistors, to be supplied by user, should be of the values marked "EX" in column "Series Resistance," for operation at rated voltage.

Screw Base Lamps (and NE-53)

Required series resistor for operation at the rated voltage is mounted within base. See values marked "IN" in column "Series Resistance." Lamps may be operated at higher circuit voltages by use

of suitable external resistors supplied by user — see below.

Operation of Neon Glow Lamps on Higher Voltages

Since Glow Lamps operate at low values of current it is practicable to apply them to higher voltage circuits using external resistors to absorb the added voltage. The table below gives the recommended values for four voltage ranges. The resistors must be suitable for the voltage applied and have capacity to dissipate several times the nominal lamp watts.

OHMS VALUE FOR EXTERNAL RESISTORS FOR
CIRCUIT VOLTAGES

Glow Lamp	250 to 300 V.	300 to 375 V.	375 to 450 V.	450 to 600 V.
NE- 2				
NE-51	750,000	1,000,000	1,200,000	1,600,000
NE-45				
NE-53	82,000	120,000	150,000	200,000
NE-57				
NE-48	110,000	150,000	180,000	240,000
NE-17				
NE-30	13,000	18,000	24,000	33,000
NE-32	18,000	24,000	30,000	39,000
NE-34	9,100	13,000	16,000	22,000
NE-36	11,000	16,000	20,000	27,000
NE-40	6,200	8,200	11,000	16,000
NE-42	8,200	11,000	13,000	18,000

ARGON GLOW LAMPS

Description

These glow lamps contain an argon gas mixture and produce light as a glow covering the electrodes. The color is a pale blue-violet and the light output is small. They find use as light sources principally in companion use with neon glow lamps as a second color to the neon red.

These lamps are also sources of near ultraviolet radiation. Their small size, low operating temperature and simplicity of operation are desirable characteristics. The near ultraviolet energy is of the nature which causes many materials to fluoresce and is highly actinic, making the lamps useful in some photo processes.

While the visible light is in relatively narrow lines the ultraviolet is in broad bands that provide almost continuous energy from the limit of the visible to

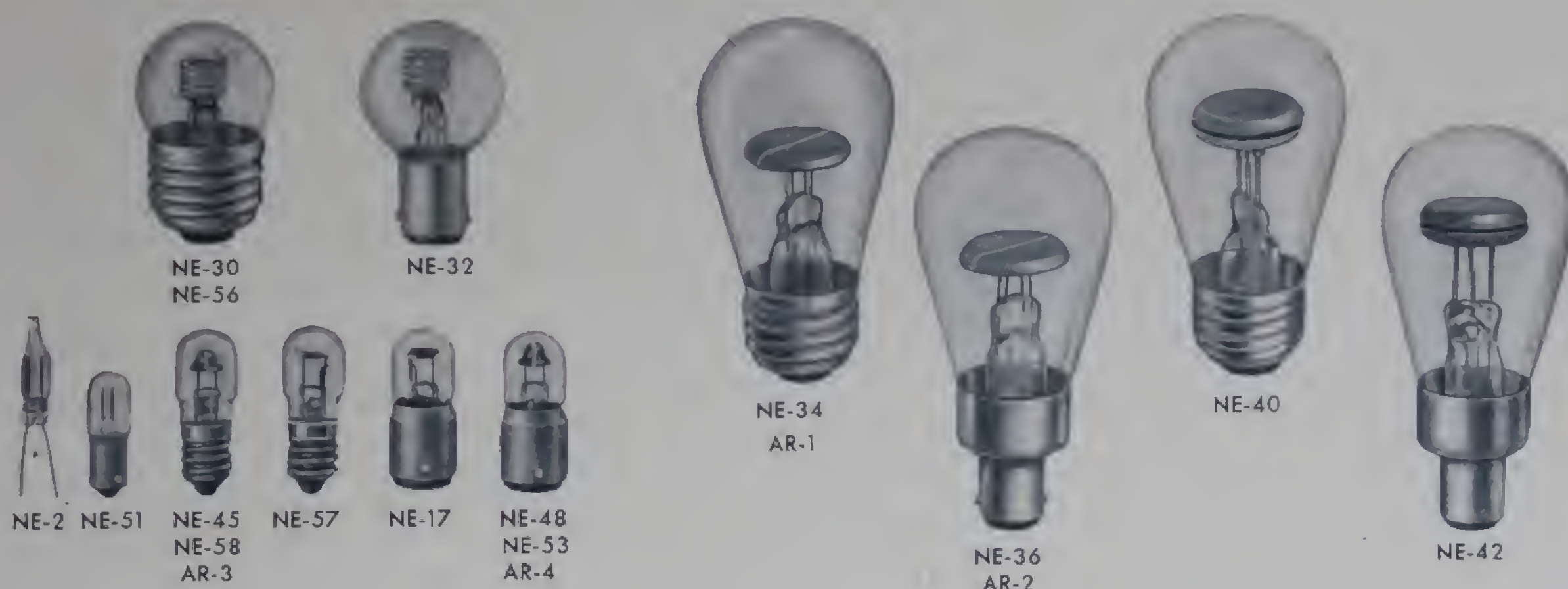
the region where the glass envelope no longer transmits.

No danger of ultraviolet burns of the eyes or skin is involved in the use of these lamps as the dangerous short radiation is not present and, of course, the total energy is low.

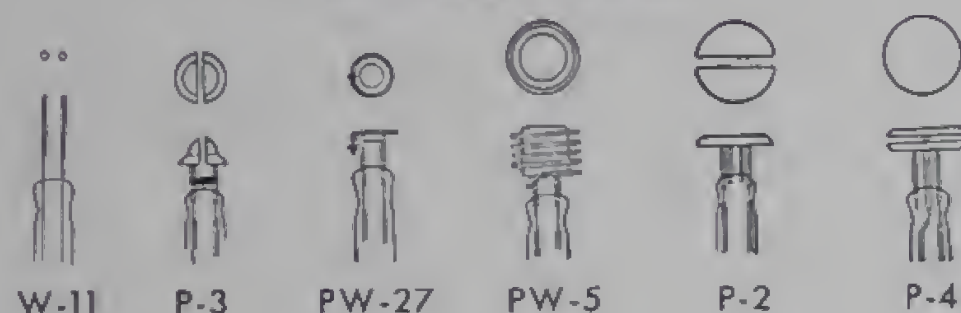
Life

Like the neon glow lamps these argon-filled lamps have a low rate of depreciation. The argon lamps are shorter lived and approximate values for average useful life for the $2\frac{1}{2}$ -watt lamps are 2000 hours and for the $\frac{1}{4}$ -watt lamps are 1000 hours. These are in terms of use of the visible light output. The useful life as ultraviolet sources is less—average useful life (to 50% of initial output) for the $2\frac{1}{2}$ -watt lamps is 750 hours and for the $\frac{1}{4}$ -watt lamps is 150 hours.

NEON AND ARGON GLOW LAMPS



ELECTRODE SHAPES



BASE DESIGNATIONS



Watts, Nominal	Cat. No.	Price Each	Description					Approximate Starting† Voltage		Series Resistance Ohms	Pkg Qty	
			Volts (Circuit)	*Bulb	Base	Electrode Shape	Max. O.A. Length (Inches)	A.C.	D.C.		Unit	Std
CLEAR NEON LAMPS												
Average useful life, approximately 5000 hours (except NE2†)												
1/25	NE- 2	\$0.12	105-125	T- 2	Unbased (Wire Term.)	W-11	1 1/16 †	65	90	200,000 EX	100	1000
1/25	NE-51	.15	105-125	T- 3 1/4	S.C. Bay. Min.	W-11	1 3/16	65	90	200,000 EX	10	100
1/4	NE-45	.60	105-125	T- 4 1/2	Cand. Screw	P-3	1 5/8	65	90	30,000 IN	10	100
1/4	NE-48	.53	105-125	T- 4 1/2	D.C. Bay. Cand.	P-3	1 1/2	65	90	30,000 EX	10	100
1/4	NE-53	.83	105-125	T- 4 1/2	D.C. Bay. Cand.	P-3	1 1/2	65	90	30,000 IN	10	100
1/4	NE-57 Δ	.60	105-125	T- 4 1/2	Cand. Screw	PW-27	1 5/8	55	70 §	30,000 IN	10	100
1/4	NE-17	.68	105-125	T- 4 1/2	D.C. Bay. Cand.	PW-27	1 1/2	55	70 §	30,000 EX	10	100
1/2	NE-58	.60	210-250	T- 4 1/2	Cand. Screw	P-3	1 5/8	65	90	100,000 IN	10	100
1	NE-30	.60	105-125	G-10	Medium Screw	PW-5	2 1/16	60	85	4,800 IN	10	100
1	NE-32	.68	105-125	G-10	D.C. Bay. Cand.	PW-5	2 1/16	60	85	4,800 EX	10	100
1	NE-56	.60	210-250	G-10	Medium Screw	PW-5	2 1/16	60	85	40,500 IN	10	100
2	NE-34	.75 □	105-125	S-14	Medium Screw	P-2	3 5/16	60	85	3,500 IN	10	100
2	NE-36	.83	105-125	S-14	Sk. D.C. Bay. Cand.	P-2	3 3/4	60	85	3,500 EX	10	100
3	NE-40 †	.90 □	105-125	S-14	Medium Screw	P-4	3 5/16	60	85	2,200 IN	10	100
3	NE-42	.98	105-125	S-14	Sk. D.C. Bay. Cand.	P-4	3 3/4	60	85	2,200 EX	10	100
CLEAR ARGON LAMPS												
For average useful life, see previous page.												
2 1/2	AR-1	\$0.75	105-125	S-14	Medium Screw	P-2	3 5/16	65	90	2,650 IN	10	100
2 1/2	AR-2	.83	105-125	S-14	Sk. D.C. Bay. Cand.	P-2	3 3/4	65	90	2,650 EX	10	100
1/4	AR-3	.68	105-125 A.C. ▲	T-4 1/2	Cand. Screw	P-3	1 5/8	80	115	15,000 IN	10	100
1/4	AR-4	.75	105-125 A.C. ▲	T-4 1/2	D.C. Bay. Cand.	P-3	1 1/2	80	115	15,000 EX	10	100

*Bulbs are designated by a letter to indicate shape and a figure to indicate the approximate diameter in eighths of an inch.

†Applies to a new lamp.

‡The 1 1/16" dimension is for glass parts only; the lamp has wire terminals which extend 1 1/16".

ΔCentre electrode connected to base shell.

□NE-34 and NE-40 are supplied with red sprayed finish at additional charge of 8 cents each.

§D.C. starting voltage is for lamp connected so that centre electrode is negative.

†Upper electrode connected to base shell.

‡Average useful life of NE-2 is in excess of 25,000 hours when operated with 200,000 ohms series resistance on 105-125 volts.

▲May be operated on 135-volt D.C. circuits.

McGILL LAMP GUARDS



No. 1400

Locking Type
with Reflector



No. 1425

Locking Type
less Reflector



No. 1429

Protector-O
Open Guard



No. 1436

Crescent
Wall Guard



No. 1600

Non-Locking Type
less Reflector



No. 1610

Non-Locking Type
with Reflector

LOXON LOCKING LAMP GUARDS

Breakage and theft take a heavy toll from users of large numbers of lamps. To stop breakage a sturdy guard is necessary. To stop theft an effective lock is required. The Loxon line does this double duty at a very small original cost. These dual-purpose lamp guards are made for all types of sockets. They are quickly and easily attached to the socket and locked with a key, one of which is furnished with each dozen guards. All guards are made of steel, heavily tinned.

Cat. No.	Price Each	Lamp Wattage	Fits Socket	Wt Lbs Per Doz
WITHOUT REFLECTOR				
1420	\$0.80	25—40*	Brass	2 1/4
1420A	.80	25—40*	W. P.	2 1/2
1420B	.80	25—40*	W. P.	3
1426	.90	60—100	Brass	2 3/4
1428A	.90	60—100	W. P.	3
1428B	.90	60—100	W. P.	3 1/2
2444	1.00	200	Brass	3
2446A	1.00	200	W. P.	3
2446B	1.00	200	W. P.	3 1/2
WITH TINNED STEEL REFLECTOR				
1400	\$1.20	25—40*	Brass	3 1/2
1401A	1.20	25—40*	W. P.	3 1/2
1443	1.20	50—75	Brass	4 1/2
1444A	1.20	50—75	W. P.	4 1/2

Extra keys for Loxon Guards are available—Cat. No. 2216. Price, each \$0.10.
*Also for 50-watt rough service and 50-watt mill type.

All numbers followed by "A" fit any weatherproof socket with bottom bead measuring 1 1/8 to 1 1/4 inches in extreme diameter.

All numbers followed by "B" fit any weatherproof socket with bottom bead measuring 1 1/4 inches in extreme diameter.

PROTECTOR-O LAMP GUARDS

Open-bottom guards which permit quick and easy removal or insertion of lamp, yet fully protect lamp. Heavy tinned finish.

Cat. No.	Price Each	Lamp Wattage	Fits Socket	Wt Lbs Per Doz
1429	\$0.80	25—75	Brass	2 1/2
1432	.80	25—75	W. P.	2 1/2

GRIPON NON-LOCKING LAMP GUARDS

Same style as Loxon type except they have plain screws instead of locking device for attaching to sockets.

Made for both regular and mill type lamps and for brass shell and weatherproof sockets. Heavy tinned finish.

Cat. No.	Price Each	Lamp Wattage	Fits Socket	Wt Lbs Per Doz
WITHOUT REFLECTOR				
1608	\$0.70	25—40*	Brass	2 1/4
1608A	.70	25—40*	W. P.	2 1/2
1608B	.70	25—40*	W. P.	3
1601	.80	60—100	Brass	2 3/4
1603A	.80	60—100	W. P.	3
1603B	.80	60—100	W. P.	3 1/2
1605	.90	100—200	Brass	3
1606A	.90	100—200	W. P.	3
1606B	.90	100—200	W. P.	3 1/2
WITH TINNED STEEL REFLECTOR				
1610	\$1.10	25—40*	Brass	3 1/2
1611A	1.10	25—40*	W. P.	3 1/2
1620	1.10	50—75	Brass	4 1/2
1621A	1.10	50—75	W. P.	4 1/2

*Also for 50-watt rough service and 50-watt mill type lamps.
All numbers followed by "A" fit any weatherproof socket with bottom bead measuring 1 1/8 to 1 1/4 inches in extreme diameter.
All numbers followed by "B" fit any weatherproof socket with bottom bead measuring 1 1/4 inches in extreme diameter.

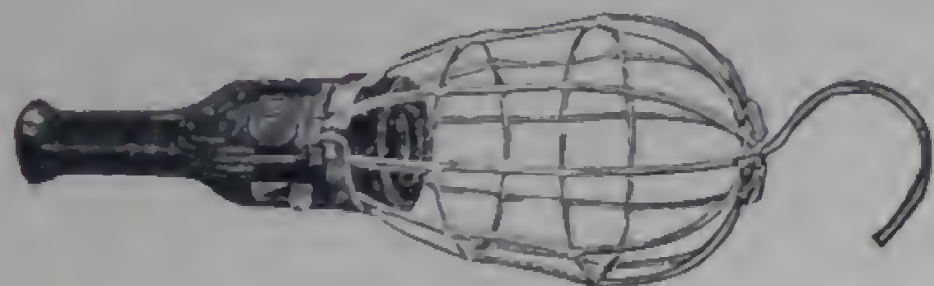
CRESCENT WALL GUARDS

These guards have a closed cage with steel wire ribs and stamped rings, copper plated. Key hole slots in base rings for attaching or detaching. Designed to fit 3 1/4" and 4" outlet boxes.

Cat. No.	Price Each	Size Outlet Box (In.)	Lamp Wattage	Inside Diam. (Inches)	Depth (Inches)	Wt Lbs per Doz
1436	\$1.35	3 1/4	60	2 13/16	5 3/4	6 1/2
1438	1.40	4	100	3 1/8	6 1/2	7 1/2

McGILL PORTABLE LAMP GUARDS

RUBBER OR WOOD HANDLE GUARDS



Furnished with or without reflector. Available either with black rubber or black wood handle, equipped with 660-watt socket. Electrically welded steel cage, bright cadmium alloy plating.

RUBBER HANDLE		WOOD HANDLE		Lamp Wattage	Length (In.)	Wt Ea Oz
Cat. No.	Price Each	Cat. No.	Price Each			

CLOSED CAGE — WITHOUT REFLECTOR

7000*	\$ 3 00	8000*	\$3 00	40-100	14	22
7000S	3 60	8000S	3 60	40-100	14	22
7000M*	2 80	8000M*	2 80	50	12 ³ / ₈	19
7000MS	3 40	8000MS	3 40	50	12 ³ / ₈	19

CLOSED CAGE — WITH REFLECTOR

7000R*	\$3 20	8000R*	\$3 20	40-100	14	22
7000SR	3 80	8000SR	3 80	40-100	14	22
7000MR*	3 00	8000MR*	3 00	50	12 ³ / ₈	19
7000MSR	3 40	8000MSR	3 40	50	12 ³ / ₈	19

OPEN CAGE — WITHOUT REFLECTOR

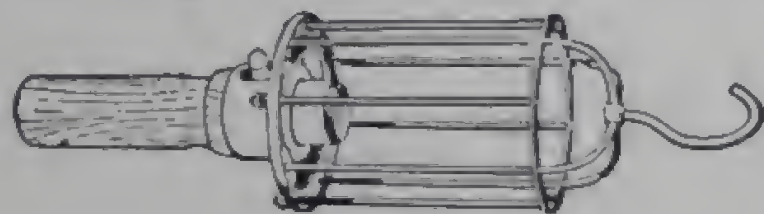
7001*	\$3 20	8001*	\$3 20	25-100	12	22
7001S	4 00	8001S	4 00	25-100	12	22
7001M*	3 20	8001M*	3 20	50	10 ³ / ₈	19
7001MS	3 50	8001MS	3 50	50	10 ³ / ₈	19

OPEN CAGE — WITH REFLECTOR

7001MR*	\$3 40	8001MR*	\$3 40	50	10 ³ / ₈	19
7001MSR	4 00	8001MSR	4 00	50	10 ³ / ₈	19

*These guards can be supplied with grounding attachment at a small increase in price.
The letter "S" denotes socket with switch or lever.
The letter "M" denotes guards with a small cage designed especially for the 50-watt rough service lamp.
Replacement sockets: No. 4003 keyless, No. 4005 with switch.

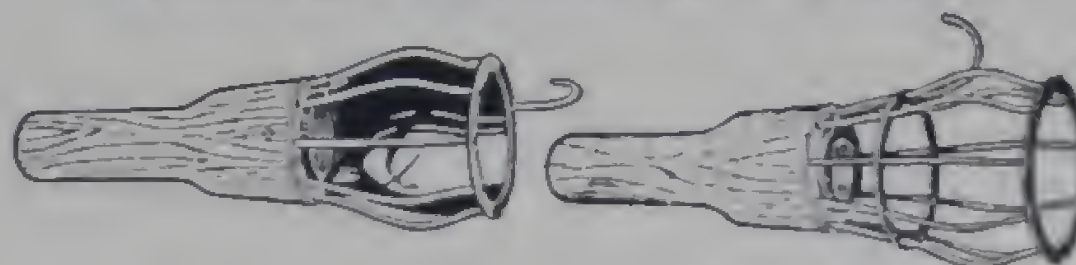
BULLDOG PORTABLE LAMP GUARDS



Cage of best grade steel wire, copper plated, with hook. Hardwood handle is rigidly attached to cage. May be had with either Levolver universal lever socket or keyless socket. Adapted for any size lamp cord. Weight 19 ounces.

Cat. No.	Price Each	Cage	Lamp Wattage	Length (Inches)	Socket
4675	\$4.50	Closed	25-100	15 ¹ / ₄	4004 Lever
4000	4.00	Closed	25-100	14 ⁷ / ₈	4003 Keyless

NATIONAL PORTABLE LAMP GUARDS



No. 1450R

Nos. 1450, 1451, 1452

Heavily tinned steel cage. Equipped with composition keyless socket No. 4003 fitted with spring contacts firmly embedded in handle, making a solid, durable, light weight, one-piece guard. Suitable for both mill and standard type lamps.

Cat. No.	Price Each	Cage	Lamp Wattage	Length Inches	Weight Ounces
1450*	\$3 50	Plain Open	15-40	11 ¹ / ₈	14
1450R*	3 90	Reflec. Open	15-40	11 ¹ / ₈	15
1451	3 20	Plain Open	25-75	11	17
1452	3 80	Plain Open	40-100	11 ¹ / ₄	20

*Takes 50-watt rough service A-19 lamp.

SAFETY VAPOUR-PROOF PORTABLE GUARD



This strong, portable, sealed lamp guard is water-tight, dust-tight and moisture-proof. The plastic handle and fibre cage are shock-proof and non-sparking. A rubber gasket placed between the cage and handle absorbs all stress and strain, preventing breakage. The heavy glass protecting globe eliminates possibility of breakage of the lamp bulb inside from splashing liquids. Being air-tight these guards are perfectly safe for use where vapour and dust infused air is prevalent. They have no equal for safety, service and convenience around flour mills, paint booths, finishing rooms, airports, warehouses, food processing plants, shipyards, aboard ships, and many other places.

The No. 3007 has plastic cage. No. 3006 has a heavily tinned, electrically welded wire cage. Equipped with No. 4003 keyless socket.

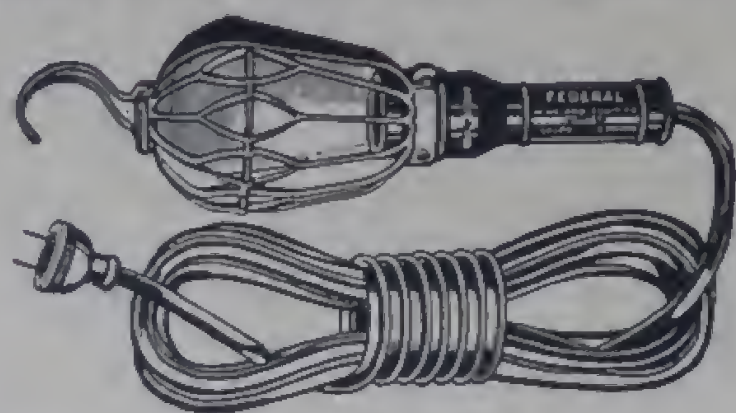
Cat. No.	Price Each	Cage	Lamp Watts	Wt Oz
3006	\$8 00	Steel, Open	40	25
3006R	8 50	Steel, Refl'tr	40	26
3007	9 00	Fibre, Open	40	23
3006G	1 50	Globe Only	...	...

SOCKETS FOR MCGILL PORTABLE GUARDS

Cat. No.	Price Each	Description	Watts
4003	\$0 40	Black Composition Keyless	660
4004	.90	Levolver with Fibre Lever	660
4005	.90	Levolver with Fibre Lever	660

PORTABLE LAMP GUARDS

FEDERAL PORTABLE LAMP GUARD SETS



No. 500 Series

Consists of Flexco guard, hook, inside reflector, No. 2/18 Type SJ cord (in lengths listed), Federal rubber attachment cap and Federal safety handle grip with keyless socket. Lamp size, 25-60 watts.

No. 600 Series

Same as No. 500 Series, but with push-through socket in handle, and No. 2/18 Type S cord.

Cat. No.	Price Each	Description	Std Pkg	
			Qty	Wt

500 SERIES LAMP GUARD SETS

525	\$3.90	25 ft. Cord	24	60
535	4.65	35 ft. Cord	24	72
550	5.85	50 ft. Cord*	24	96

600 SERIES LAMP GUARD SETS

625	\$6.00	25 ft. Cord	24	78
635	7.50	35 ft. Cord	24	96
650	10.00	50 ft. Cord*	24	126

RENEWAL PARTS ONLY

500	\$1.50	Safety Handle with Keyless Socket for No. 500 Series.
600	2.10	Safety Handle with Push Through Socket, for No. 600 Series.
1350	1.00	Flexco Guard with Reflector.
1375	1.00	Flexco Guard without Reflector.
250	.20	Attachment Plug Cap.

*Longer lengths on application.

BUNGHOLE SAFE-T-LAMP



The Bung-hole Safe-T-Lamp is a vapour-proof lighting unit for inspecting gasoline, oil, chemical and other drums used for explosives. Made of non-sparking metal throughout. Furnished with a 15-watt, 120-volt T7 intermediate base clear lamp. Overall length 30". Outside diameter 1½". Cord not supplied.

Cat. No.	Price Each	Description	Std Pkg	
			Qty	Wt
6146	\$20.00	Complete	1	5
6157	.40	Cover Globe only.	1	....

SAFE-T-LITE PORTABLE EXTENSION LAMPS



Available with or without reflector. Black rubber handle equipped with 660 watt socket. Closed wire cage is made of 1/8" cadmium plated wire. Will accommodate 100-watt lamp. Supplied complete with guard, socket, handle, and strain relief.

Cat. No.	Price Each	Description	Std Pkg	
			Qty	Wt

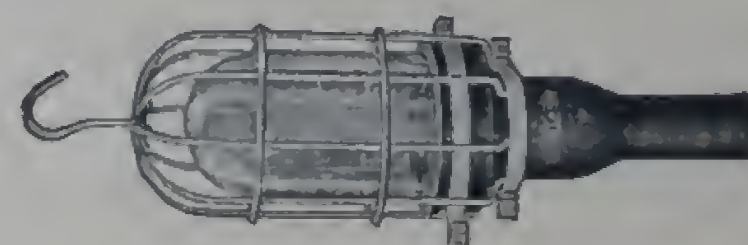
SAFE-T-LITE COMPLETE

6141	\$1.60	Less Reflector.	1	1½
6142	2.15	With Reflector.	1	1½

RENEWAL PARTS ONLY

6147	\$0.85	Handle only.	1	....
6148	.95	Guard only.	1	....
6149	.20	Socket only	1	....
6150	.10	Strain Relief only.	1	....
6151	.45	Reflector only.	1	....

SAFE-T-LAMP VAPOUR-PROOF EXTENSION LAMP



A serviceable vapour-proof lamp for use in areas containing combustible vapours, gases, acids and water. Black rubber handle, extra thick glass globe, porcelain socket, cadmium plated wire cage. Will accommodate 100-watt lamp. Supplied complete with guard, handle, socket, globe and strain relief.

Cat. No.	Price Each	Description	Std Pkg	
			Qty	Wt

SAFE-T-LAMP COMPLETE

6144	\$7.00	Complete.	1	3
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RENEWAL PARTS ONLY

6152	\$2.80	Handle only.	1
6153	2.80	Guard only.	1
6154	1.10	Globe only.	1
6155	.40	Socket only.	1	....
6156	.10	Strain Relief only.	1	....

APPLETON PORTABLE REELITES

PORTABLE TYPES



An automatic reeling device for extension light cords. The light is always available within arm's reach and no time is lost in untangling cords or plugging in for new extensions. Each reel has a ratchet stop which works exactly like a window shade. Cover plate fits $3\frac{1}{4}$ " or 4" outlet boxes. Finish is light grey enamel. Supplied with No. 16 gauge, 2-conductor cord.

MACHINE TOOL TYPE



This Reelite is equipped with a connector body so that any portable electrical tool or device can be attached.

Finished in light grey enamel, with base for attaching to $3\frac{1}{4}$ " or 4" outlet box. Supplied with 25 feet of No. 16 gauge, 2-conductor cord.

WALL BRACKET



This bracket is recommended for wall mounting of Portable Reelites. May be ordered separately or with Reelite, at an addition of \$2.50 to price of Reelite.

Cat. No.	Price Each	Description	Lift Lbs†	Wt Lbs
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WITH 12 FEET OF CORD — 5 1/2 INCH REELITE

1532	\$19.00	Without Wiring Device	2	4
1533	21.00	Brass Shell Key Socket	2	5
1534	21.70	Composition Key Socket	2	5

WITH 25 FEET OF CORD — 7 1/4 INCH REELITE

1524	\$24.25	Without Wiring Device	1 1/2	8
1525	27.50	Brass Shell Key Socket	1 1/2	8
1526	27.50	Composition Key Socket	1 1/2	8
1530*	27.50	Without Wiring Device	1 1/2	8

WITH 40 FEET OF CORD — 10 INCH REELITE

1519	\$37.25	Without Wiring Device	1	13
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WITH 50 FEET OF CORD — 10 INCH REELITE

1520	\$40.00	Without Wiring Device	1	14
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MACHINE TOOL TYPE

1523	\$38.10	With Connector Body	...	8
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WALL BRACKET

1538	\$2.50	For 5 1/2, 7 1/4 and 10" diameter Reelites.	8
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Rating—250 volts, 660 watts.

*Equipped with No. 16 3-conductor cord. One conductor grounded to frame.

†Lifting capacity. For devices attached to cord of Reelite listed above.

APPLETON RETRACT-O-REEL

The Retract-o-Reel is a light weight all cast aluminum balancing reel used for supporting portable tools, air and electrical devices weighing up to 10 lbs. Reels support light weight drills, screw drivers, assembly tools, etc., directly over production line while operator is otherwise engaged.

The Appleton Retract-o-Reel embodies the following features:

1. The newly designed wire grip stopper employs a wedge type principle of gripping, which insures extra long life for the wire rope, while assuring a positive grip — no set screws to injure or break the wire rope even with constant operation.
2. The end of the wire rope is furnished with an eye loop made of a swaged-in thimble, permitting quick tool connection.
3. The Retract-o-Reel turns on self-lubricated oil-less bearings.
4. Furnished with 6 feet, preformed wire rope, rubber bumper, cable clamp, and thimble in swaged eye loop.

RETRACT-O-REEL HAND WHEEL

Hand wheel fits tension adjustment stud on Retract-o-Reel. It affords safe and quick spring



tension adjustment for proper balance especially after reel servicing.

Cat. No.	Price Each	Tool Weight		Rope in Feet		Net Wt Each
		Max	Min	Active	Inactive	

RETRACT-O-REEL

B21-51	\$35.00	5	0	6	0	6 lbs.
B21-71	35.00	7	5	6	0	6 lbs.
B21-81	35.00	8	7	5	1	6 lbs.
B21-101	35.00	10	8	1 1/2	4 1/2	6 lbs.

RETRACT-O-REEL HAND WHEEL — EXTRA

A1-B21	\$2.50	For Tension Adjustment.	8 oz.
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WIRE CONNECTORS; MCGILL LAMP CHANGERS

MARR INSULATED CONNECTORS

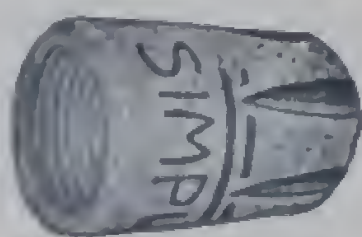


Suitable for both fixture and wiring work. Wires are rigidly held in brass insert by set screw. Bakelite insulating cap screws on quickly and easily. No. 1 has capacity of from two No. 18 to three No. 14 and one No. 18 wires. No. 2 has capacity of up to five No. 12 solid wires.

No. 5 has porcelain insulating cap in place of the bakelite cap. It is for use only where excessive heat is present. No. 550 is supplied with bakelite cap, and is approved for 600 volt circuits.

Cat. No.	Price Per C	Description	Std Pkg Quantity
1	\$5.50	Bakelite Cap.....	100
2	6.90	Bakelite Cap.....	100
5	6.90	Porcelain Cap.....	100
550	8.00	Bakelite Cap.....	100

SIMPLEX AND CONEX CONNECTORS



Cat. No.	Price Per C	Description	Std Pkg Quantity
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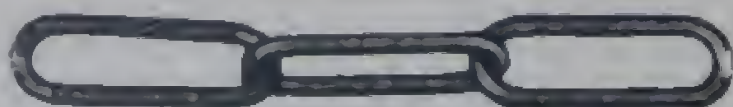
SIMPLEX PORCELAIN CONNECTORS

Normal	\$2.70	For general wiring.....	100
Medium	2.30	For close fixture work...	100

CONEX BAKELITE CONNECTORS

2	2.30	For general wiring.....	100
3	2.00	For close fixture work...	100

CHANDELIER CHAIN



Made of steel. Finished bronze or brushed brass. Length of link, 2".

Cat. No.	Price Per C Yds	Description	Std Pkg Yards
8188	\$22.00	Brass	100
8188	22.00	Bronze	100

BUCHANAN LOK-SEAL CONNECTORS



A solderless connector for quick splicing of wires. Crimping tool exerts equal, four-sided pressure on splice cap that draws the cap and conductors into one solid mass. Insulator is supplied with locking ring, to ensure permanent attachment. No. 2004 cap with No. 2005 insulator has capacity of from two No. 18 to three No. 12 wires.

Cat. No.	Price	Description	Standard Package	
			Quantity	Weight

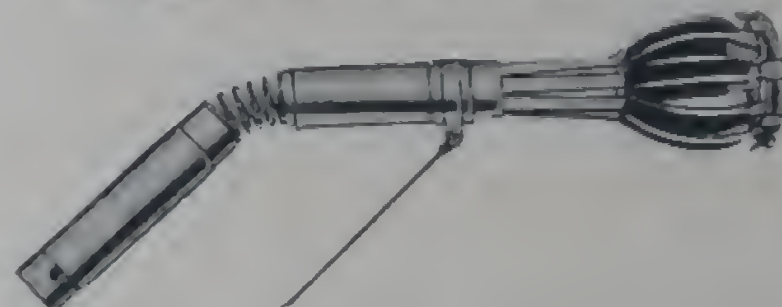
BUCHANAN LOK-SEAL CONNECTORS

2004	\$ 1.70 / C	Splice Cap	1000	2 1/2
2005	2.00 / C	Insulator	1000	2 3/4

CRIMPING TOOL

S-10	\$12.80 Ea.	For No. 2004	1	2
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MCGILL LAMP CHANGERS



McGill Adaptable Lamp Changers are supplied with a coil spring around the ends of the finger tips. This coil spring grips the lamp firmly and makes it much easier to remove.

This changer has the added safety feature of insulation. A 1 3/4" insert of insulating material prevents any possible shock or injury should the lamp changer come into contact with live wires.

Steel poles are available. They come in 5-foot sections, and should be ordered according to the length of pole desired. For example, "one 15-foot pole." Poles longer than 30 feet are not recommended. Prices of changer heads do not include poles.

Cat. No.	Price Each	Description	Lamp Wattage	Wt Lbs
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LAMP CHANGER LESS POLE

150-C	\$7.00	Angle Adjustment	15-60	2
151-C	7.00	Angle Adjustment	100-200	2
152-C	7.50	No Angle Adjustment	300-500	2
153-C	8.00	No Angle Adjustment	750-1500	2

STEEL POLE ONLY

....	\$4.50	5 foot Section	2
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FIXTURE PARTS AND FITTINGS

HICKEYS AND CROWFEET

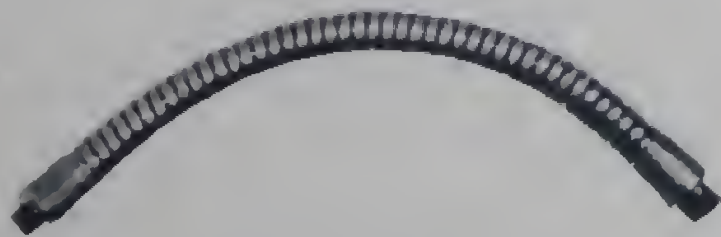


Cat. No.	Price Per C	Description	Std Pkg	
			Qty	Wt
MALLEABLE IRON HICKEYS				
1453	\$9.30	$\frac{3}{8}$ " x $\frac{1}{8}$ "	100	20
1454	9.30	$\frac{3}{8}$ " x $\frac{1}{4}$ "	100	20
1455	9.30	$\frac{3}{8}$ " x $\frac{3}{8}$ "	100	20
1463	21.50	$\frac{1}{2}$ " x $\frac{3}{8}$ "	100	20

PRESSED STEEL FIXTURE HICKEY				
1349	\$4.40	3/8" x 1/8"	100	20

CROWFEET				
48	\$3.80	Tapped for 1/8" Iron Pipe	100	50
48A	3.80	Tapped for 1/4" Iron Pipe	100	50
48B	5.40	Tapped for 3/8" Iron Pipe	100	50
48C	7.00	Tapped for 1/2" Iron Pipe	100	50

FLEXIBLE ARMS



Ruggedly constructed with smooth action. Brush brass finish. No. 154 has 1/8 inch iron male thread each end. No. 540 has 3/8 inch iron male thread each end.

Length Inches	Cat. No.	Price Each	Cat. No.	Price Each
8	154-8	\$0.90	540-8	\$1.10
9	154-9	1.00	540-9	1.20
10	154-10	1.05	540-10	1.25
12	154-12	1.10	540-12	1.30
15	154-15	1.25	540-15	1.45
18	154-18	1.65	540-18	1.85
24	154-24	2.20	540-24	2.40

SHADE HOLDERS

Brushed Brass Finish



No. 119
For Porcelain or Weatherproof Sockets

No. 1264
For Brass Shell Sockets

Cat. No.	Price Per C	Socket	Fitter	Std Pkg Quantity
119	\$28.50	Porcelain	2 1/4"	100
1264	17.90	Brass	2 1/4"	100

BRASS NIPPLES

Made of brass tube, brushed brass finish.



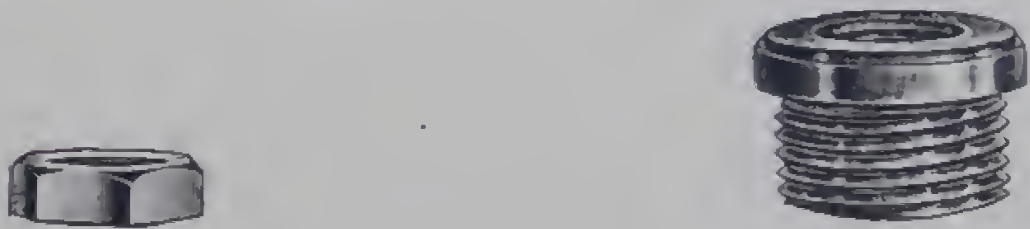
Straight Nipple

Close Nipple

Cat. No.	Price Per C	Description	Std Pkg Quantity
STRAIGHT BRASS NIPPLES			
88-G	\$ 8.70	1/8" Ir x 1" long	100
88-H	12.00	1/8" Ir x 2" long	100

CLOSE BRASS NIPPLES			
1014	\$ 1.75	1/8" Ir x 1/2" long	100
1014-B	2.30	1/8" Ir x 3/4" long	100
1014-D	3.20	1/8" Ir x 1" long	100
52	4.00	1/8" Ir x 1 1/4" long	100
53	4.70	1/8" Ir x 1 1/2" long	100
54	5.80	1/8" Ir x 1 3/4" long	100
55	7.20	1/8" Ir x 2" long	100

LOCKNUTS AND BUSHINGS

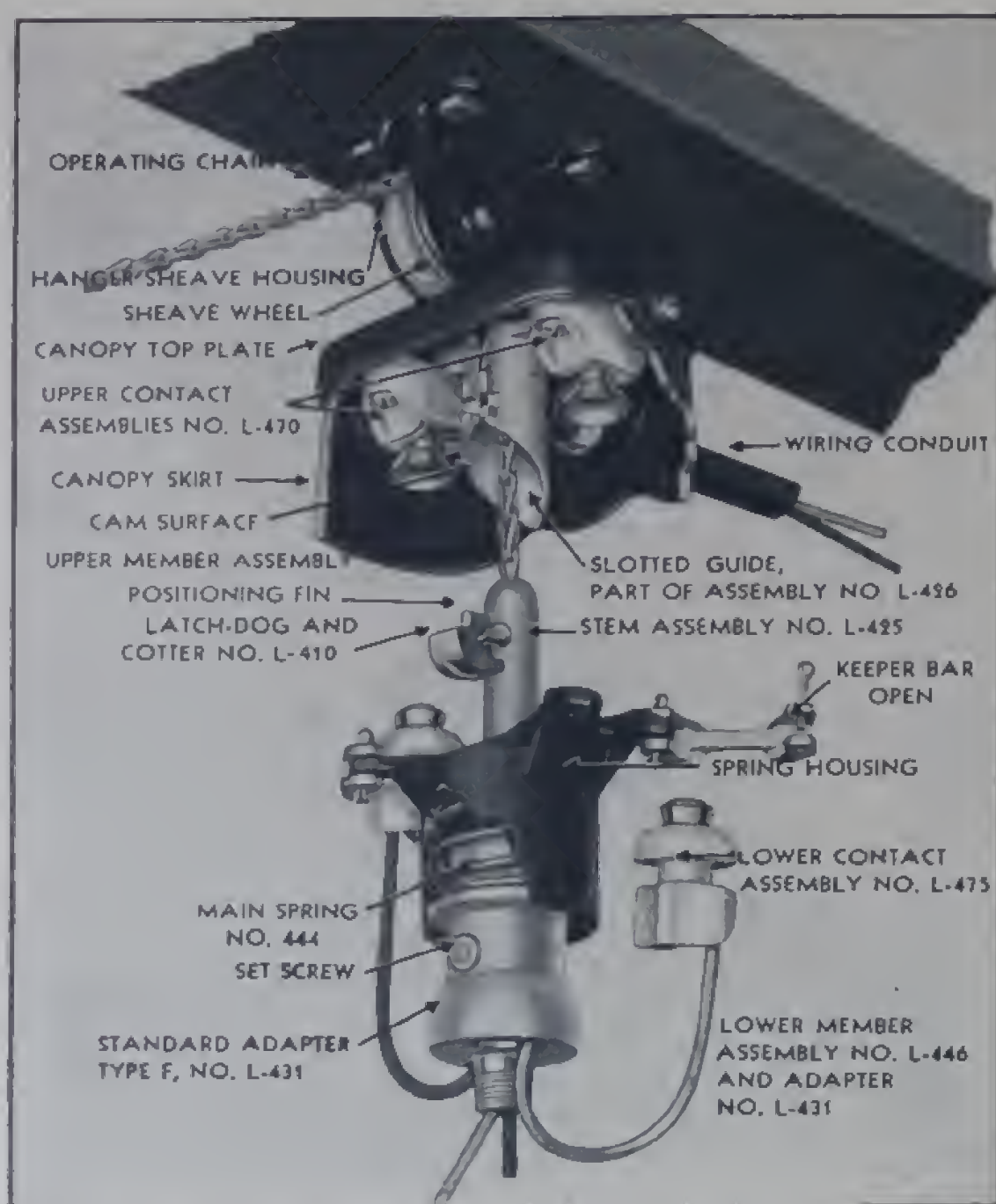


Locknut

Reducing Bushing

Cat. No.	Price Per C	Description	Std Pkg Quantity
LOCKNUTS — STEEL			
50515	\$ 1.20	1/8" Iron pipe size	100
REDUCING BUSHINGS — STEEL			
842-A	\$10.00	3/8" to 1/8" Iron pipe size	100
843-A	9.30	3/8" to 1/4" Iron pipe size	100
844-A	6.30	1/4" to 1/8" Iron pipe size	100

THOMPSON LAMP LOWERING HANGERS



Cut-away view of Model L-241 disconnected and partially lowered

Thompson Hangers in all types of installations, indoors and out, bring the fixture down to the man instead of sending the man up to the fixture. This is logical and results in absolute safety. There is no electrical hazard as the fixtures are disconnected when lowered, and there are no ladder or climbing hazards, no scaffolds, platforms or slings required.

The Thompson Hanger is essentially a latching type, overhead disconnecting switch and a fixture lowering and raising device combined. It consists of two members, upper and lower.

The upper member, carrying a pair of upper contact assemblies to which the current feed wires attach, is firmly secured to the supporting structure. The lower member carries the engaging lower contact assemblies, wired to the lighting fixture which it supports.

The entire operation of unlatching and disconnecting, lowering and raising, positioning, reconnecting and latching, is a simple manual one by means of the regulated pull and release on the small chain or cable used to lower and raise the fixture.

Electrical Characteristics

Thompson Hangers are divided into two definite

types from the standpoint of the Electrical Characteristics.

1. The two-pole hanger in various models for heavy service, both indoors and out, where single circuits of two wires only are required. These hangers are Underwriters' rated and approved for 15 amperes at 600 volts, 30 amperes at 250 volts A.C., and 20 amperes at 250 volts D.C.

2. The 3-Way 4-Wire hanger with four poles, in various models for indoor use only, are Underwriters' rated and approved for 15 amperes at 115 volts, 7½ amperes at 230 volts A.C., on each circuit. They can be used for any combination, such as two circuits 3-wire leaving one pole blank, two circuits each 2-wire, or three circuits 4-wire.

Both types are designed for multiple and parallel circuits commonly found. They are not recommended for high tension series use, as there is no provision for shunting across the line when the hanger is disconnected in lowering. The two-pole hangers, are, however, used in series work within their capacity range, when separate manual shunts or IL transformers are provided.

They may be used anywhere that open fixtures are permitted BUT SHOULD NOT be used in hazardous locations where vapor- or explosion-proof fixtures are required.

The two-pole hangers are suitable for single or group clusters of incandescent or fluorescent fixtures with 2-wire primary circuits, or single mercury fixtures, when wired to the 2-wire secondary circuit.

The 3-Way 4-Wire hangers are particularly suitable for combination mercury-incandescent fixtures, double or triple mercury fixtures, or double or triple fixtures where individual control is desired for regulating lighting intensity or color combinations.

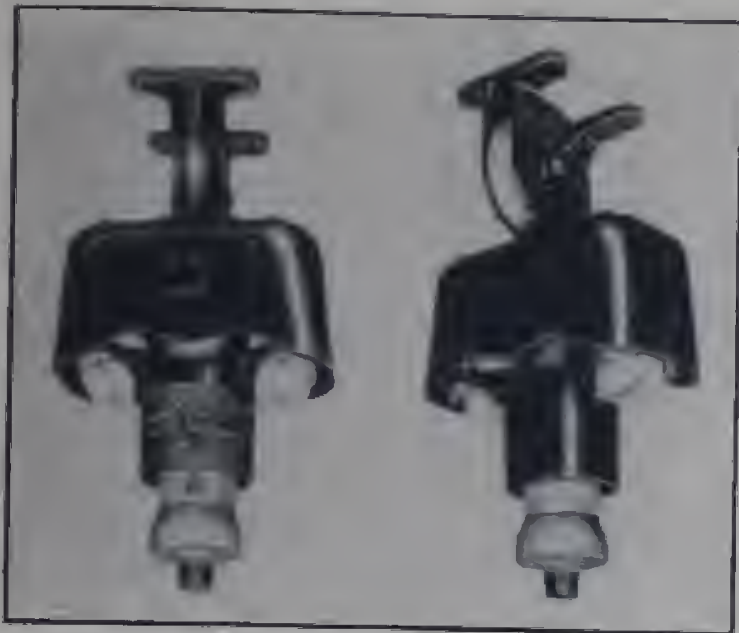
Construction

All hangers in the 100 series have solid, one-piece canopies only. Hangers in the 200 series have two-piece, removable, medium depth canopies. This arrangement facilitates wiring and permits ease of inspection and cleaning. These hangers are recommended for very dirty locations indoors.

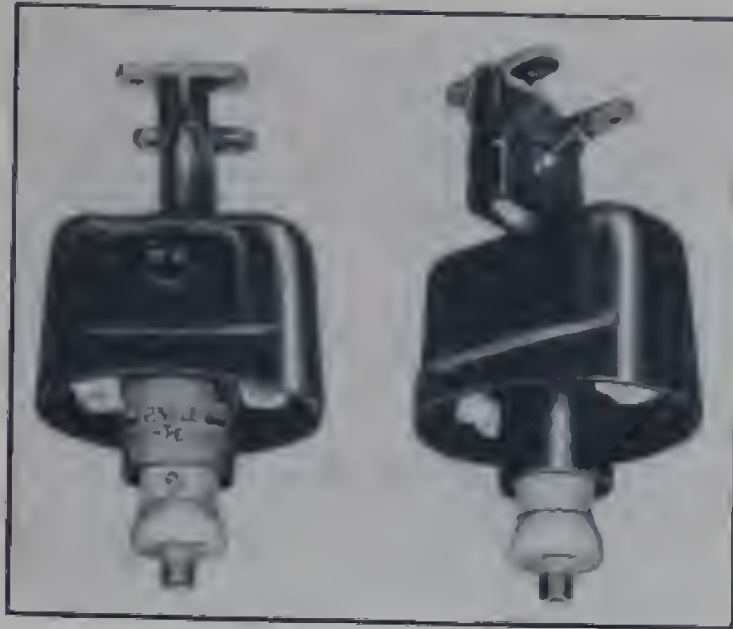
Two-pole hangers (100 and 200 series) are supplied with canopy drilled for ¾" conduit entrance. For open wiring, a removably inserted, 2-hole, threaded porcelain bushing secured by a ¾" locknut is provided. Four-pole hangers (300 series) have canopy drilled for ¾" conduit, locknut connection.

All load-carrying parts, except the manganese bronze latchdog, are malleable iron or steel, cadmium plated or galvanized. Everdur or Olympia bronze sheave axle screws, nuts and washers. Lock beam

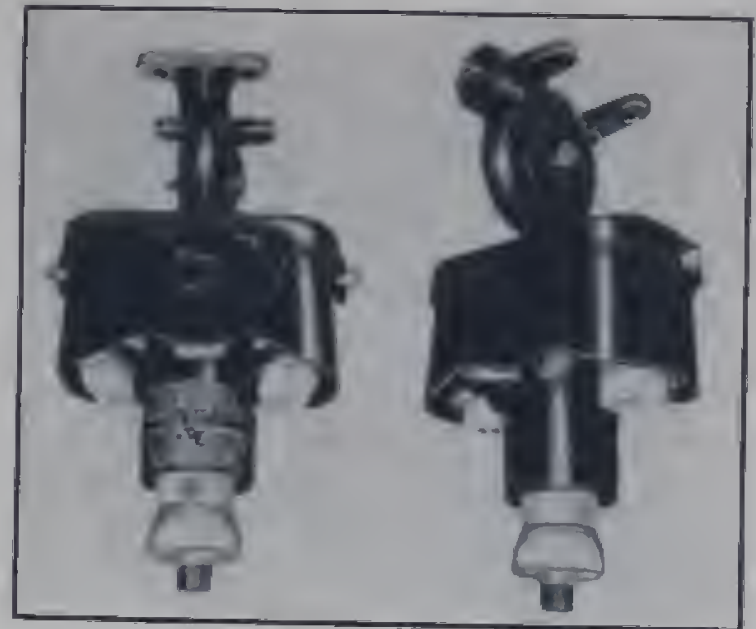
THOMPSON LAMP LOWERING HANGERS



No. L-141



No. L-183



No. L-245

stem is of interrupted rib design for accurate positioning and greater rigidity.

Finishes

Standard finish, baked black japan on sheave housing, canopy and spring housing.

Cadmium-plated or Hot-dip Galvanized finishes are also available and will be furnished when so specified. These special finishes also include silver-plated contacts, cadmium-plated latchdog and coppers. To order, designate by adding to the hanger catalogue number, suffix letter SA for cadmium or SB for hot-dip galvanized finish, and add \$4.00 to the price. Other special colors or finishes quoted on request.

Cat. No.	Price Each	Sheave Housing	Canopy	Application	Ship. Wt
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TWO POLE FOR SINGLE 2-WIRE CIRCUITS

L-141	\$28.00	Open face	1-piece Med.	Indoor	8
L-143	28.00	Semi-encl.	" "	"	8
L-145	31.00	Seal type	" "	"	8
L-137	35.00	Comb. Seal	" "	"	8
L-181	31.00	Open face	1-piece Deep	Outdoor	8
L-183	31.00	Semi-encl.	" "	"	8
L-185	34.00	Seal type	" "	"	8
L-177-SB	42.00	Comb. Seal	" "	"	8
L-241	29.20	Open face	2-piece Med.	Indoor	8
L-243	29.20	Semi-encl.	" "	"	8
L-245	32.20	Seal type	" "	"	8

*FOUR POLE FOR TWO CIRCUITS 2-WIRE

L-321	\$36.00	Open face	1-piece Med.	Indoor	10
L-323	36.00	Semi-encl.	" "	"	10
L-325	39.00	Seal type	" "	"	10

*Also 2 circuit, 3-wire or 3 circuit, 4-wire.

NOTES

1. When ordering, be sure to specify whether hangers are to be chain or cable operated in order that correct swivel dead-end fittings will be fur-

nished. If chain is to be used, specify size in order that hanger stems may be reamed to correct size. Mention of the fixture make and type to be used with the hangers assists in checking chain size and type of adapter to be supplied.

Every installation of Thompson Hangers requires the use of some accessories, such as pulleys, chain or cable, lock boxes or grip cleats, etc. Such equipment must be ordered separately. Complete information on request.

2. All Thompson Hangers in the 100 and 200 series are supplied with standard fixture connecting adapter type F with $\frac{1}{2}$ " male pipe thread, unless otherwise specified.

All Thompson Hangers in the 300 series are supplied with standard fixture connecting adapter type M with $\frac{3}{4}$ " male pipe thread unless otherwise specified.

The following adapters, all interchangeable, will be substituted on specification with no change in price per hanger. Add to the hanger catalogue number, the letter shown before the adapter type desired.

G $\frac{1}{2}$ — $\frac{1}{2}$ " female pipe thread (for 2-wire hangers only).

G $\frac{3}{4}$ — $\frac{3}{4}$ " female pipe thread (for 2-wire hangers only).

H —Swing suspension eye only.

J —Swing suspension eye and S-hook.

K —Crowfoot with $\frac{5}{8}$ " cap screw and lock washer.

HH—Double hook for double bail suspended fluorescent or cold cathode fixtures.

M — $\frac{3}{4}$ " male pipe thread (for 4-wire hangers only).

N — $\frac{3}{4}$ " female pipe thread (for 4-wire hangers only).

(Continued on next page)

THOMPSON LAMP LOWERING HANGERS



(Continued from previous page)

3. Radial Adjustment Adapter, Type R, can be supplied with all Thompson Hangers for use with bail or yoke suspended, angle type reflectors and floodlights. Add the letter R as a suffix to the hanger catalogue number, and \$6.00 to the price per hanger.

4. Hangers in the 100 and 200 series can be supplied with spring housing provided with bakelite conductor cable clamps, for carrying the weight of conductor cable. Particularly desirable when adapters types H, J, K, HH and R are used with the hangers. The standard spring housing of the 300 series hangers is provided with two drilled and tapped bosses to receive two pairs of conductor cable clamps. To order, add 1000 to the standard catalogue number and \$2.00 to the price.

5. All Hangers, except Catalogue Nos. L-137, L-177 and L-1177, can be furnished with the duplex arrangement of upper member — that is, the sheave housing separated from the canopy and with flange plates attached to each, for connecting with a $\frac{3}{4}$ " conduit stem of length to suit the installation. Conduit stem is not furnished.

This arrangement eliminates the necessity for long drop stems below the hanger and also makes possible turning the sheave housing to any desired radial angle to the canopy and its wiring entrance.

To order, add 2000 to the standard catalogue number, bringing the number to the L-2100 series for one-piece canopy hangers, L-2200 series for two-piece canopy hangers, and L-2300 for the 3-way 4-wire hangers. Add to the price per hanger, \$3.00 for black japan finish, or \$3.40 for plated finish to match hanger.

PULLEYS

Thompson pulleys are designed primarily for use with Thompson Hangers and for interchangeable use with various types of suspension accessories. They are closely shrouded and the wheel groove is

deep so they may be used safely with chain, with cable from $\frac{1}{4}$ " Tiller to as small as $\frac{3}{32}$ " diameter, or with rope $\frac{1}{2}$ " diameter or smaller. Housings and wheels are malleable iron, wheels cadmium plated. Axle rivets are Everdur or Olympia Bronze.

Cat. No.	Price Each	Description	Std Pkg	
			Qty	Wt

CORNER PULLEYS

L601	\$4.00	Open face	1	1 $\frac{1}{2}$
L602	4.20	Open face with porcelain insulator knobs	1	2
L605	4.80	Open face hinged, bolted type	1	2
L606	5.60	Open face hinged. Hinge plate has $\frac{3}{4}$ " male pipe thread	1	2
L607	6.60	Seal type, threaded for $\frac{3}{4}$ " conduit, V centering notch and bolt hole spacing to take U-bolts for suspension from 1 $\frac{1}{4}$ "-1 $\frac{1}{2}$ " pipe brackets	1	2

FILLER BLOCKS

L419	\$0.40	Malleable iron, to fit V notch of corner pulley L607 and hangers L137, L177 and L1177. For use with pipe bracket mounting.	1	1 $\frac{1}{4}$
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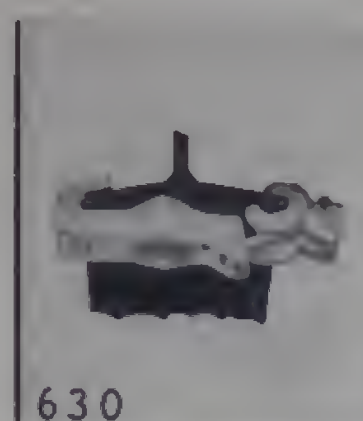
STRAIGHT THROUGH PULLEYS

L611	\$3.40	Overhung pulley	1	1 $\frac{1}{2}$
L612	3.60	Overhung pulley with porcelain insulator knobs	1	1 $\frac{1}{2}$
L613	4.40	Under and overhung pulley	1	1 $\frac{1}{2}$
L614	4.60	Under and overhung pulley with porcelain insulator knobs	1	1 $\frac{1}{2}$
L615	4.40	Overhung pulley, hinged. Bolted type	1	1 $\frac{1}{2}$
L616	5.20	Overhung pulley, hinged. Hinge plate has $\frac{3}{4}$ " male pipe thread	1	2

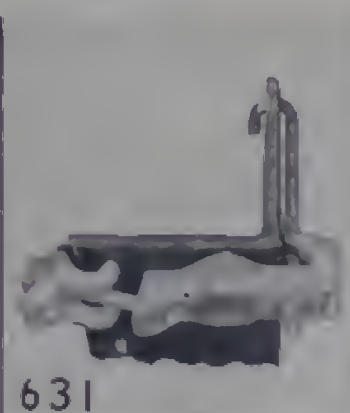
*All pulleys except hinged types Nos. L605, L606, L615 and L616 can be equipped with $\frac{3}{4}$ " female flange plate No. 626 for attachment to $\frac{3}{4}$ " pipe drop stem, or to Thompson gravity suspension fittings 641 and combination fittings 645, 646, 648 and 649. For this assembly add 1000 to pulley number and increase price \$1.40.

†All pulleys except hinged types Nos. L605, L606, L615 and L616 can be equipped with a $\frac{3}{4}$ " male flange plate No. 627 for attachment to $\frac{3}{4}$ " standard female pipe flange or to Thompson beam clamps 630, 631, 636 and 638. For this assembly add 2000 to pulley number, and increase price \$1.80.

THOMPSON LAMP LOWERING HANGERS BEAM CLAMPS



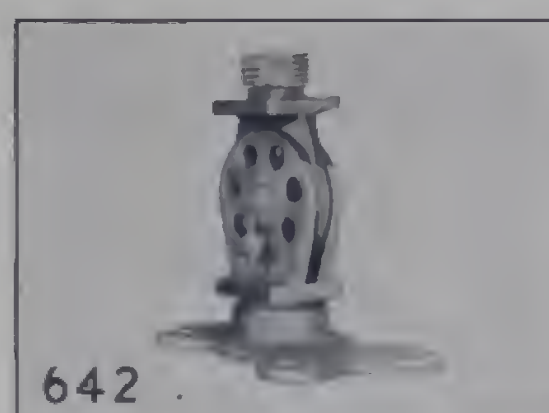
630



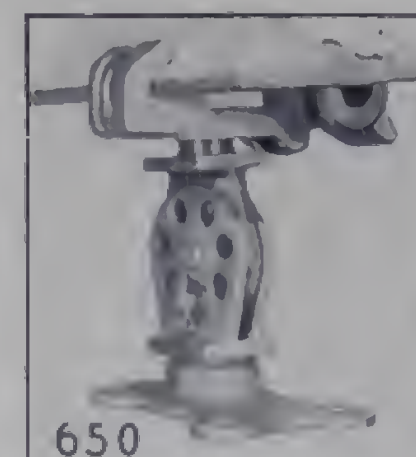
631



640



642



650

Thompson Beam Clamps permit suspension of Hangers and many devices from structural steel members, without drilling. They may be used with the various flange plates direct when attached to horizontal members.

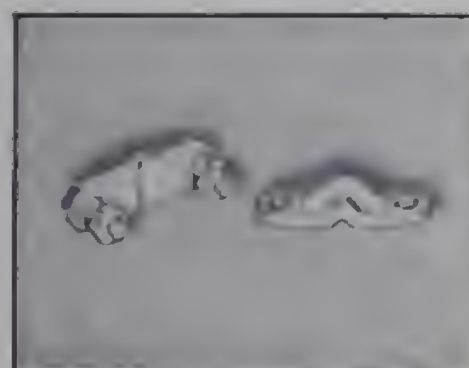
The gravity suspension fittings are used separately or with the beam clamps to permit vertical suspensions from sloping or arched surfaces of structural members. Parts are malleable iron, cadmium plated or hot-dip galvanized.

Cat. No.	Price Each	Description	Wt Lbs
622	\$1.90	Hanger flange plate, tapped for $\frac{3}{4}$ " pipe.	1
623	2.40	As No. 622, but with $\frac{3}{4}$ " close nipple.	1
630	2.80	Beam Clamp ($3\frac{1}{2}$ " to $5\frac{1}{2}$ " flange width).	1
631	3.20	Angle Beam Clamp. For use with angles 3" x 3" to 5" x 5". Flanges not over $\frac{3}{4}$ " thick.	1 $\frac{1}{4}$
636	6.40	Adjustable Beam Clamp (4" to $6\frac{3}{4}$ " flange width).	2 $\frac{1}{2}$

Cat. No.	Price Each	Description	Wt Lbs
637	\$8.60	Beam Clamp No. 636 with hanger flange plate No. 623, and hanger attaching bolts.	3 $\frac{1}{2}$
638	6.80	Beam Clamp (4" to 8" flange width).	3
639	8.50	Beam Clamp No. 638, with hanger flange plate No. 623, and hanger attaching bolts.	4
640	5.80	Gravity Suspension with 4-hole top plate. Complete with hanger flange plate No. 622 and hanger attaching bolts.	2
641	3.20	Gravity Suspension with $\frac{3}{4}$ " standard pipe thread both ends, for use with beam clamps Nos. 630, 631, 636 and 638.	1
642	5.00	Gravity Suspension No. 641 with hanger flange plate No. 622 and hanger attaching bolts.	2
650	7.80	Beam Clamp No. 630 and gravity suspension No. 642 with hanger attaching bolts.	3
651	8.20	Angle Beam Clamp No. 631 and gravity suspension No. 642 with hanger attaching bolts.	3

A complete line of Beam Clamps and hanger accessories is available. Prices on request.

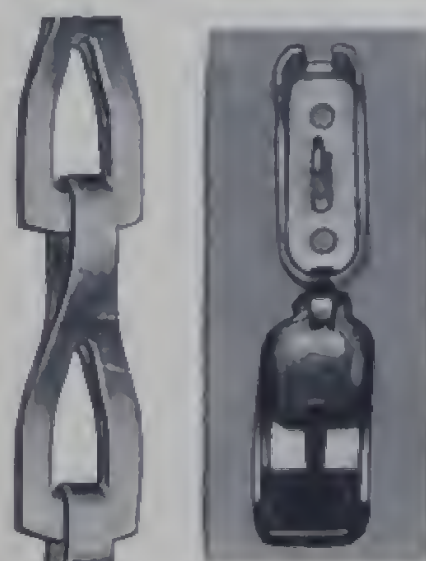
CHAIN AND MISCELLANEOUS FITTINGS



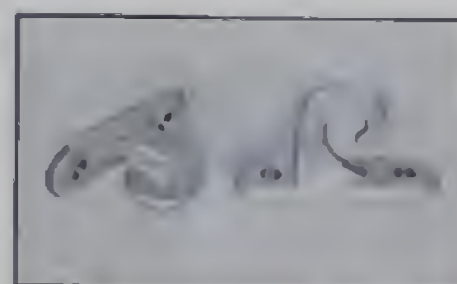
No. 675



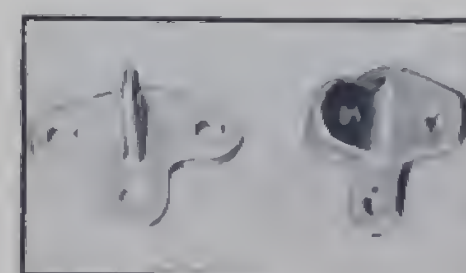
No. 690



Cut Link Type No. 691



No. 694



No. 695

CHAIN

Cat. No.	Price 100 ft.	Maximum Fixture Weight (lbs)	Type of Chain	Weight 100 ft. (lbs)	Tensile Strength (lbs)
35	\$14.00	25	Arc Lamp*	7	550
33	16.80	50	Arc Lamp*	9	725
31	17.20	70	Arc Lamp*	12	915
40	26.40	25	Sash†	7.5	550
50	38.00	60	Sash†	12	800
4	34.00	50	Machine‡	13	750

*Cut link steel.

†Cut link bronze.

‡Welded link steel.

FITTINGS

Cat. No.	Price Each	Description	Wt Lbs
675	\$0.60	Span Wire Clamp, malleable iron, galvanized. With bolts and nuts. Two required for a hanger, one for a pulley.	$\frac{1}{4}$
690	.50	Grip Cleat for securing free end of operating chain.	2 $\frac{1}{2}$
691	2.40	Lock Box, open chain or cable type for bolting to pole or building face.	1 $\frac{1}{2}$
694	.70	Hook, for link or cable loop, galvanized.	$\frac{1}{4}$
695	.70	Locking staple, for link or cable loop.	$\frac{1}{4}$

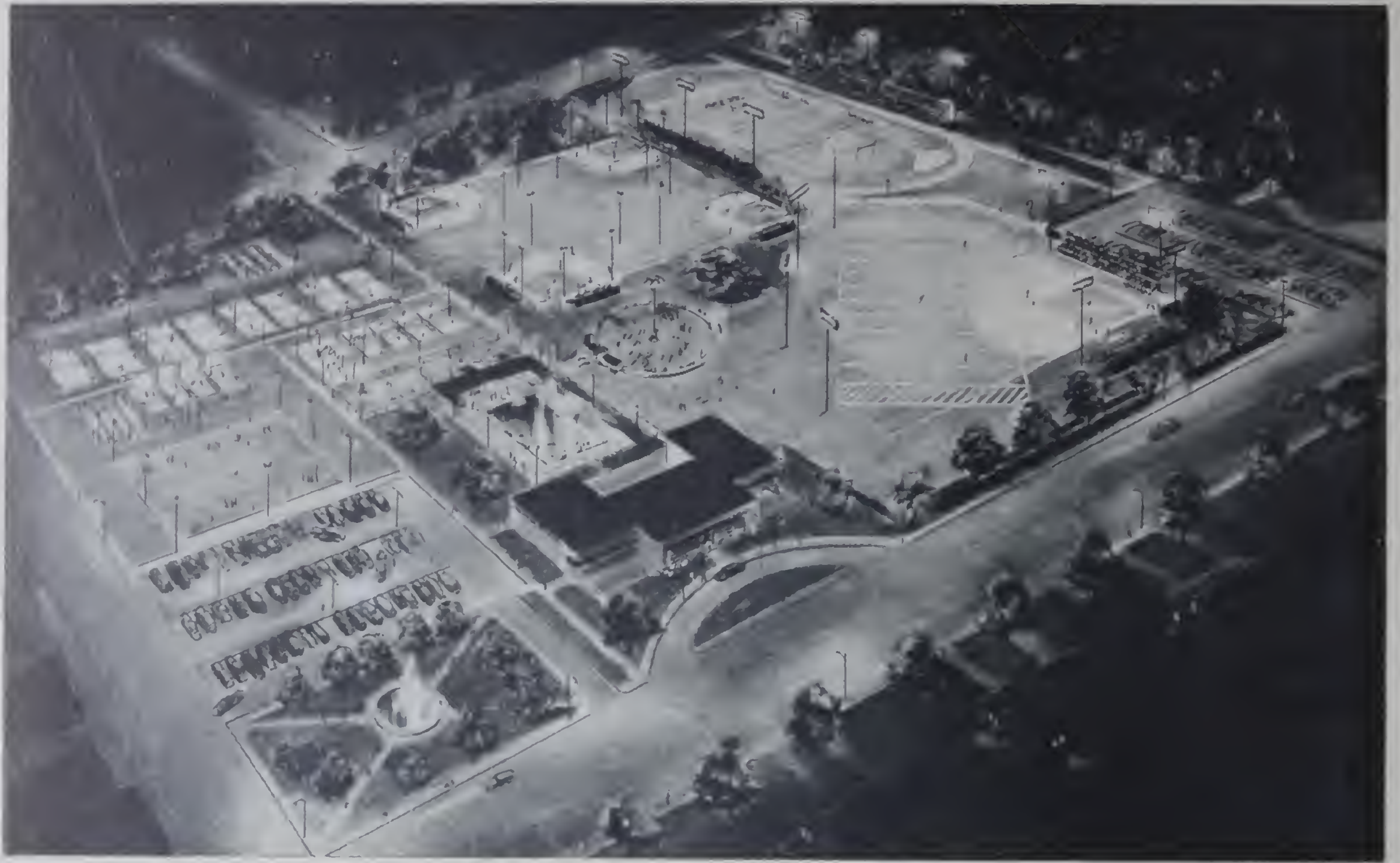
FLOODLIGHTING FOR RECREATION CENTERS

General Electric floodlights cover a complete line, which are designed to give the proper type and size of floodlight for any ordinary application. High efficiency is assured from scientific design and thorough testing. Long life and low maintenance expense is obtained through sturdy construction.

A modern recreation center where the whole family can enjoy itself has many advantages. Forward-looking recreation directors are finding

that well planned centers are ideal for planning and programming many outdoor sports under a single management.

Adequate floodlighting, by extending outdoor activities into late evening, increases the usefulness of a recreation center. It adds hours to the day. Floodlighting is the one best way to serve people who have time for recreation only after normal working hours.



Typical Recreation Center

The recreation center that you want may be quite different from the one shown here. Yours will need to be designed to your available space and local interests; it needs the vision and enthusiasm of local people to plan and carry it through.

ADVANTAGES

1. A self-contained center aids effective organization of recreation.
2. It is easier to manage than dispersed game areas.
3. By centralizing the recreation area, important savings in supervision and maintenance costs are made.
4. Strategic location encourages large scale use.
5. A good recreation center commands universal interest and wide use.
6. Its size and nature naturally adapt it to inclusion in broad plans for civic improvement.
7. Sponsorship, and possibly endowment, can frequently be found for this highly practical type of "living" memorial to war heroes or prominent citizens.
8. A well planned center permits the most economical use of space.
9. Idle, or low-value land can usually be used.
10. A co-ordinated center can be built faster than equivalent scattered game areas — important wherever people lack adequate outdoor play space.

FLOODLIGHTING OPPORTUNITIES

SPORTS



Baseball Fields

The survival of minor-league professional baseball through the last ten years is said to be due largely to night games — played under floodlights. It is generally agreed that night baseball is here to stay because of the greatly increased attendance and gate receipts that are obtained.



Football Fields

The popular interest in night games and the added gate receipts have been the salvation of football in many high schools and small colleges. General Electric can furnish inexpensive floodlights and practical recommendations for this type of lighting.



Softball Fields

This tremendously popular game is gaining rapidly, an important contributing factor being the greatly increased attendance and the increased possible use of fields through floodlighting. There are cases on record where softball in towns having a population of only a few hundreds regularly draws night-game attendance of 2000 to 3000 spectators. Wherever softball is growing in popularity, General Electric floodlighting will help it grow profitably.



Tennis Courts, Park and Playground

The value of recreational facilities is increased through floodlighting because more people can use them. The cost of floodlighting is, in most cases, only a small fraction of the cost of providing additional facilities. One tennis court, for example, illuminated until 11 p.m. can handle up to twice as many evening players as one which must close at twilight. General Electric floodlights are easy to install in an attractive manner.



Gun Clubs, Driving Ranges, Swimming Pools

Recreational facilities like these, operated by clubs or by small commercial enterprises, are most attractive to the users and more profitable to the operators when equipped with floodlighting. Floodlighting makes these facilities usable at more convenient hours for most people and makes it possible for more people to become interested.



Other Sports

Recommendations are readily available for such other sports as: Archery, Badminton, Basketball, Bowling Greens, Boxing Ring, Curling Rinks, Golf Driving Range, Handball, Hockey Rink, Horseshoe Pitching, Lacrosse, Race Tracks—Horse and Auto (Half Mile), Skating Rink, Skeet Shooting, Ski Jump, Ski Slope, Soccer, Valley Ball.

FLOODLIGHTING OPPORTUNITIES

BUILDINGS AND AREAS



Office Buildings, Banks, Stores, Theatres

Dignified, conspicuous advertising that draws favorable public attention is obtainable with floodlighting. It points out to great numbers of people, most of whom are at work during the day, the place of business of the better type of concern that takes pride in its building and its community.



Monuments and Public Buildings

Statues, public buildings and places of historical interest, in which the community takes pride can be given greater prominence with floodlighting — in fact, a prominence that is even greater at night than by day. In most cases, only a few General Electric floodlights are needed to obtain this result.



Gasoline Filling Stations, Roadside Stands, Parking Lots and Tourist Camps

These highly competitive businesses that cater to the public on the move find that their profits depend upon attractiveness of appearance which must be recognizable at a glance. Floodlighting meets the night-time requirements economically and is practically a necessity where competition is keen. A few General Electric floodlights and pump-island luminaires will help any such business.



Railroad Yards, Docks, Bridges, Aqueducts, Reservoirs and Mines

In addition to enhancing speed and safety in handling equipment and material, floodlighting is a worthwhile protective measure against mischief-makers and thieves. In most cases, the number of floodlights required is relatively small, but they must be efficient, suitable for the service, and properly applied. General Electric floodlighting will meet these requirements.



Protective Lighting and Construction Work

Night work is easier, is less costly in delays and losses, is safer under floodlighting. General Electric floodlights have many advantages over makeshift equipment—they are efficient, give proper distribution of light, are light in weight but durable, and are inexpensive.



Other Applications

Wherever light can save time or make working conditions safer; wherever it can increase business by attracting favorable attention; wherever it can protect property—wherever any or all of these conditions exist out of doors, there is likely to be a practical use for floodlights.

HOW TO PLAN ATTRACTIVE ECONOMICAL FLOODLIGHTING

Floodlights are used for so many and such different purposes that it is practically out of the question to reduce floodlight application to a matter of reading a few simple tables. The average floodlighting project presents an individual illumination design problem which, for its solution, calls for some explanation of how to get good results from floodlights.

Large projects which require many kilowatts of lighting deserve careful consideration by engineers with considerable experience. Projects that involve unusual lighting effects or special installation or operating conditions likewise call for specialized experience. From our nearest office, you can obtain carefully planned recommendations for any project.

However, the average installation involving relatively few floodlights can be designed easily, simply by following the general principles and using the simplified method described below. Both principles and method are those used by experienced engineers in the solution of such problems and can be depended upon to give practical results.

For floodlighting of outdoor sports, we recommend that prepared lighting plans which we will furnish upon request be followed as closely as possible. These convey, for most sports, the recommendations of the National Electrical Manufacturers' Association and represent the experience of the engineering staffs of the member companies.

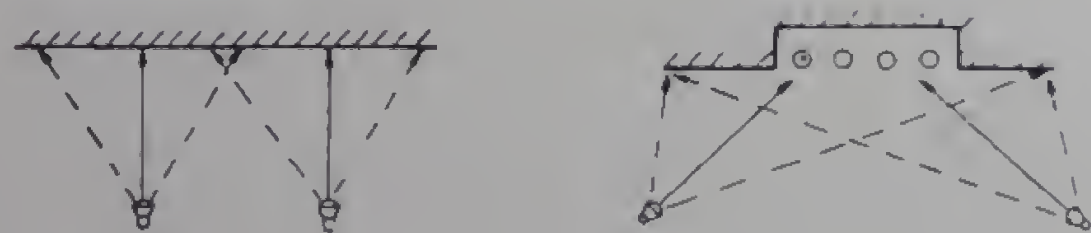
FOR ATTRACTIVE LIGHTING

Plan Substantially Uniform Illumination

The illumination that satisfies the eye as to level and degree of uniformity is the most effective, most satisfying type for most projects.

Choose Floodlight Locations

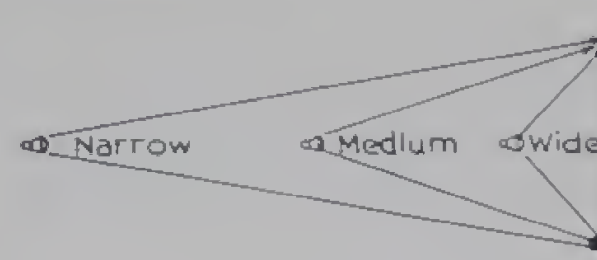
For Balanced Illumination



When floodlighting a flat surface, the selection of

floodlight locations that provide for the projection of light beams at right angles to the surface gives best efficiency and maximum reflection of light in a useful direction. However, projection at an angle is often times desirable to avoid "flatness." Where beams are to be projected at an angle, either to avoid "flatness" or because of limited choice of floodlight locations, two or more floodlight locations should be sought to prevent harsh shadows.

Cover the Surface Efficiently



Select beam spread and lamp size to give satisfactory coverage with the smallest number of floodlights. If there is any doubt, work out several possible solutions and select the most economical.

When beams from several floodlights are used to cover an area, locate and aim the floodlights so that the beams overlap by at least one-third of their spread. The greater the overlap, the smoother the effect will be and the less serious a lamp outage will be.

Aim Beam Centers Toward Points that Need Emphasis

Use the maximum candlepower of the beam center to build up illumination on the portions of the area that are hardest to light or that need to stand out from the rest. To illustrate: the building on a filling station plot usually deserves principal emphasis, for the sake of advertising value received; therefore it is advisable to aim the beams generally toward the building.

Avoid Objectionable Glare

Glare interferes with seeing, destroys attractive appearance, and may make the installation uneconomical or introduce hazards. Therefore, avoid aiming light beams directly into people's eyes. If it is necessary to project beams against normal lines of sight, use mounting height of at

HOW TO PLAN FLOODLIGHTING

least 20 ft. (and preferably 25 ft.) and aim floodlights so that spill light will not be objectionable on adjacent property or street. (Important note: In all sports floodlighting, follow the manufacturer's recommendations for mounting height and aiming.)

Visualize Completed Installation

Conditions surrounding particular projects are seldom ideal; and there is seldom only one right solution to a floodlighting problem. Therefore, it is important to try to visualize a completed installation, to decide if it will satisfy the desire for utility, eye satisfaction, and economy.

FOR GOOD APPEARANCE AND EASE OF MAINTENANCE

Make Floodlights Inconspicuous

Features of the building or grounds that permit concealment and make the floodlights relatively inaccessible to the public should be utilized. In general, the aim should be to get the best efficiency and coverage with minimum glare and, at the same time, to locate the floodlights out of reach of those who would tamper with them or damage them accidentally or maliciously. The use of steel poles designed especially for floodlighting is suggested because:

1. They may be placed at the most favorable locations for good floodlighting.
2. They are slender and thus relatively inconspicuous.
3. They are easily painted to harmonize with surroundings.
4. They are strong and durable.
5. They are relatively inexpensive.

Keep in Mind the Problems of Relamping and Cleaning

Use a method of mounting that will support the weight of a man on a ladder; or, provide a lowering hanger or a hinged pole. Securely clamp the floodlights after adjusting, and mark the settings so that the floodlights can be re-aimed if accidentally moved.

FOR EFFICIENT OPERATION

Use Lamps of Correct Voltage Rating

The cost of lighting is generally lowest when lamps are operated at their rated voltage. The only common exception to this rule exists in sports

floodlighting where, with only 300 hours or less of operation per year, the best economy results from operating lamps at about 10 per cent over rated voltage. In case of doubt as to what voltage rating to call for, consult the local central-station company.

Provide Adequate Wiring

Excessive voltage drop in wiring reduces light output immensely without appreciably reducing watts input. Wire sizes should be calculated for not more than 2 per cent voltage drop from distribution panel to lamp socket with full load burning.

FOR LONG LIFE AND LOW MAINTENANCE COST

Check Service Conditions

The floodlights listed on the pages which follow are suitable for the average outdoor operating conditions. The following special conditions may call for special equipment.

1. Adverse atmospheric conditions.
Excessive moisture or water vapour.
Corrosive or explosive gases.
Excessive dirt, dust, and soot.
2. Bad temperature conditions.
Excessively high ambient temperature.
Sudden large changes in temperature.
Too large lamps.
3. Severe vibration, such as encountered on heavy machinery.
4. Rough handling or flying debris.
5. High circuit voltage, in excess of 250 volts a-c.

Where such conditions are encountered, ask for our recommendations for your specific problem.

Specify Enclosed Floodlights

A cover glass or lens offers these advantages:

1. Better long-time efficiency of operation, by reducing the accumulation of dirt and dust on lamp and reflector surfaces.
2. Saving through easier maintenance — cleaning is easier and is required less frequently.
3. Saving through protection of lamp bulbs from cold, rain, and sleet.

HOW TO PLAN FLOODLIGHTING

A SIMPLE METHOD FOR SOLVING PROBLEMS

Recommended for simple projects requiring relatively few floodlights and involving no special illumination or installation problems; applicable only to the general-utility types of floodlights. Important note: For sports lighting, refer to lighting plans which we will furnish on request. Let our illumination engineers and lighting specialists help you with your large or special projects.

Steps

1. Select watts-per-sq-ft value.
Refer to accompanying tables.
For applications not listed, use wattage value of some comparable listed application.
2. Multiply by area to determine total wattage.
3. Select floodlight location.
4. Divide total wattage by number of locations, to determine wattage at each location.
Note that wattage need not be apportioned equally if some part of the area should have greater emphasis.
5. Determine beam spreads required for coverage.
6. Select type, size, and number of floodlights to give this coverage and operate this wattage.
Use nearest listed beam spread and standard lamp wattage.
7. Select beam aiming directions.
Portions of the area that are hardest to illuminate from the locations selected, or that require special emphasis.
8. Prescribe any additional lighting recommended.
Pump island lights? Sign lights? Decorative or ornamental entrance lights?
9. Prescribe minimum wire sizes.

Calculate on basis of 2 per cent voltage drop from distribution panel to load; increase size thus calculated, if necessary, to comply with C.S.A. Code for description of permissible branch circuits.

RECOMMENDED ILLUMINATION STANDARDS

Application	Recommended Foot-candle Levels	Recommended Watts per Sq. Ft.
RAILROADS		
Classification Yard.....		
General.....	0.1	0.0125 to 0.025
Hump.....	0.25 to 0.5	0.03 to 0.06
Retarder Areas.....	0.25 to 0.5	0.03 to 0.06
Retarders.....	0.5 to 1.5	0.06 to 0.18
Departure Yard.....	0.06 to 0.1	0.008 to 0.0125
Lead-in and Lead-out Tracks.....	0.25	0.03
Receiving Yard.....	0.06 to 0.1	0.008 to 0.0125
Repair Track (Light Running Repairs).....	0.25 to 0.5	0.03 to 0.06

Application	Recommended Foot-candle Levels	Recommended Watts per Sq. Ft.
MISCELLANEOUS		
Automobile Parking Spaces.....	1	0.15
Bulletin and Poster Boards		
Bright Surroundings—		
Light Surfaces.....	50	7.5
Dark Surfaces.....	100	15.0
Dark Surroundings—		
Light Surfaces.....	20	3.0
Dark Surfaces.....	10-50	7.5
Church Windows (Art Glass).....	20-200	3-30
Coal Yards—Protective.....	0.2	0.03
Construction and Excavation Work.....	5	0.75
Flags.....	30	4.5
*Gasoline Filling Stations		
Pumps.....	20	3.0
Yard and Driveways.....	5	0.75
Loading Docks and Platforms....	5	0.75
Lumber Yards.....	1	0.15
Piers—Freight or Passenger.....	5	0.75
Prison Yards.....	5	0.75
Protective Industrial.....	0.2	0.03
Quarries.....	2	0.3
Signs (Painted) See Bulletin Boards		
Ship Construction.....	5	0.75
Smoke Stacks.....	15	2.25
Storage Yards.....	1	0.15
Tourist Camps (General Area)....	0.2	0.03
Used-car Lots		
Active Areas.....	5	0.75
Inactive Areas.....	1	0.15
Water Tanks.....	15	2.25

*When the building is a one-story structure occupying less than, say, one-third of the plot area, consider only the plot area in calculating total wattage. If the building is larger or higher, its requirements must be determined according to "Building and Monuments" table.

BUILDING AND MONUMENTS

Building Surfaces	Reflection Factors per cent	Recommended Foot-candle Levels			Recommended Watts per Square Foot		
		A	B	C	A	B	C
White terra cotta	60-80	15	10	5	2.25	1.5	0.75
Cream terra cotta							
Light marble							
Light gray limestone	40-60	20	12	7	3.0	1.8	1.05
Bedford limestone							
Buff limestone							
Smooth buff face brick							
Briar hill sandstone	20-40	25	15	10	3.75	2.25	1.5
Smooth gray brick							
Medium gray limestone							
Common tan brick	10-20	30	18	12	4.5	2.7	1.8
Dark field gray brick							
Common red brick							
Brownstone							

A—Buildings on white ways; intensive street lighting; streets with many conflicting signs and light sources; lower portions of buildings falling under Class B locations.

B—Medium-intensity white ways; secondary business streets with few conflicting signs, etc.

C—Very little conflicting light, such as on residential streets, parks, lighted highways, etc.

G-E GENERAL PURPOSE FLOODLIGHT

TYPE L-49 — 300/500 WATTS

TYPE L-43 750/1000 WATTS



REPOSITIONING STOP



No. 5552519P

The repositioning stop fits over the degree scale to facilitate resetting, if the floodlight is rotated for servicing. Die-cast aluminum. Adjustable for any position.

This vertical repositioning stop furnished as standard equipment with these floodlights.

Also adaptable for horizontal repositioning on oval base and pipe-clamp mountings, add \$1.25 to price.

Cat. No.	Price Each	Type of Reflector	Weight in Lbs	
			Ship	Net

TYPE L-43, ENCLOSED, FOR CROSS ARM MOUNTING 750-1000 WATT

A40G83	\$48 00	Polished Alzak alum.	26	12 1/2
A40G73	41 00	Etched Alzak alum.	26	12 1/2

TYPE L-49, ENCLOSED, FOR CROSS ARM MOUNTING 300-500 WATT

A44G63	\$37.00	Polished Alzak alum.	22	11
A44G53	31.00	Etched Alzak alum.	22	11

Lamp not included.
Plain door glass is furnished, unless otherwise specified. The following types are available at no additional charge:
Lightly stippled, heavily stippled, spreadlight—Used with polished reflector to widen light beam. Refer to photometric data.
If colored glass is desired, information supplied on application.
For omission of door glass and ring, deduct \$7.40 each for L-49 and \$13.50 for L-43.
For pipe mountings, refer to Accessories and Parts.

OTHER MOUNTINGS



Pipe Clamp



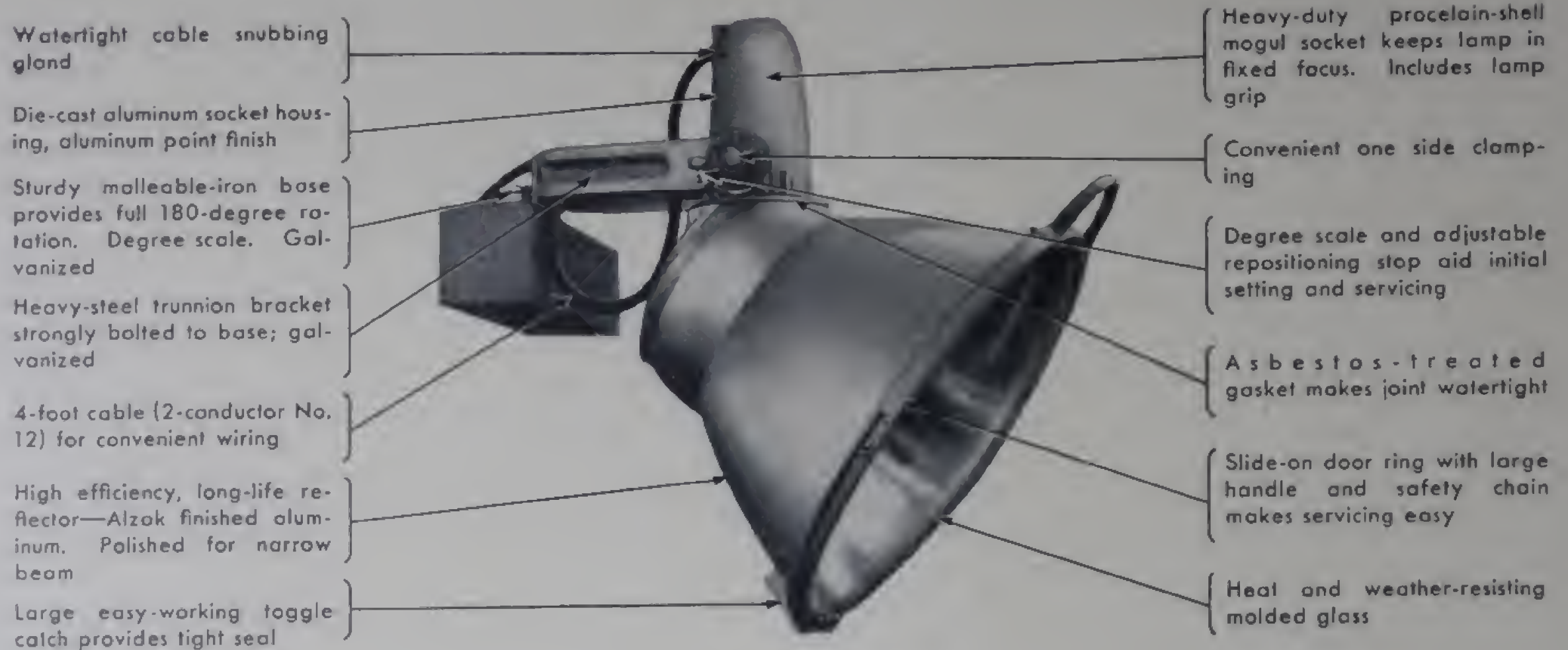
Slip Fitter



Pole Top

G-E AREA FLOODLIGHT

TYPE L-68 — 750/1500 WATTS



The popular floodlight for ground areas — notably sports fields and construction projects — where high candlepower beams will help reach across the area, or where the maintenance savings of an enclosed unit are desired. Highly efficient, durable, light weight, inexpensive.

10 STAR FEATURES THAT CUT INSTALLATION AND MAINTENANCE COSTS

1. Full 180-degree horizontal movement avoids special drilling of cross arms.



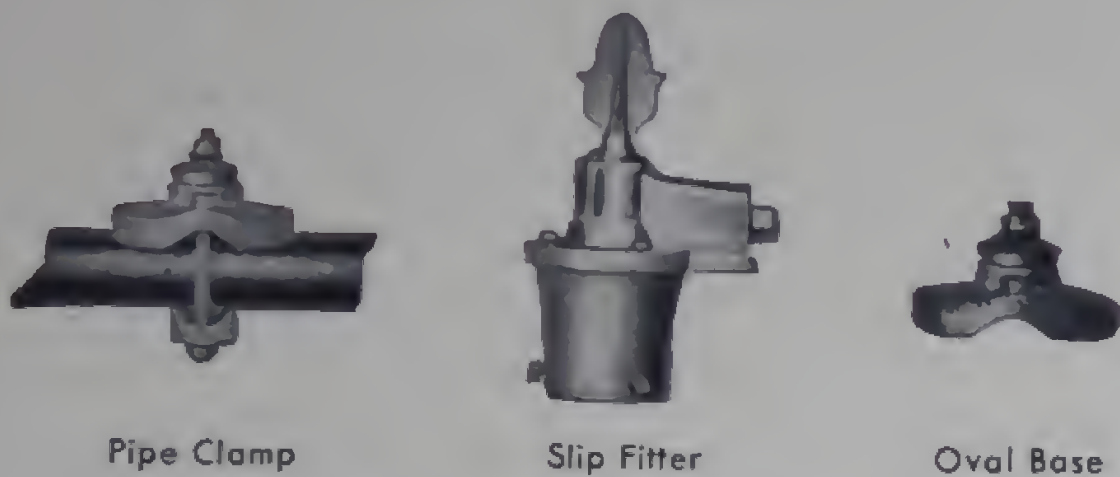
2. Hold-down and clamping bolts at different levels permit full swing of wrench.
3. Clamping bolt in handy position on right-hand side.
4. Projector swings into position for easy access.
5. Single large easy-working catch secures door.
6. Handgrip makes door easy to handle.
7. Vertical repositioning stop assures return to original position.
8. Slide door hangs out of the way when open.
9. Pressure-type clamp tightens without moving projector.
10. Mounting bracket lets rain water drain away, reducing decay and corrosion.

Cat. No.	Price Each	Type of Reflector	Approx Wt (lbs)	
			Ship.	Net
TYPE L-68, ENCLOSED FOR CROSS ARM MOUNTING				
A52G33	\$63.00	Polished Alzak finished aluminum.	26	14
A52G23	54.00	Etched Alzak finished aluminum	26	14

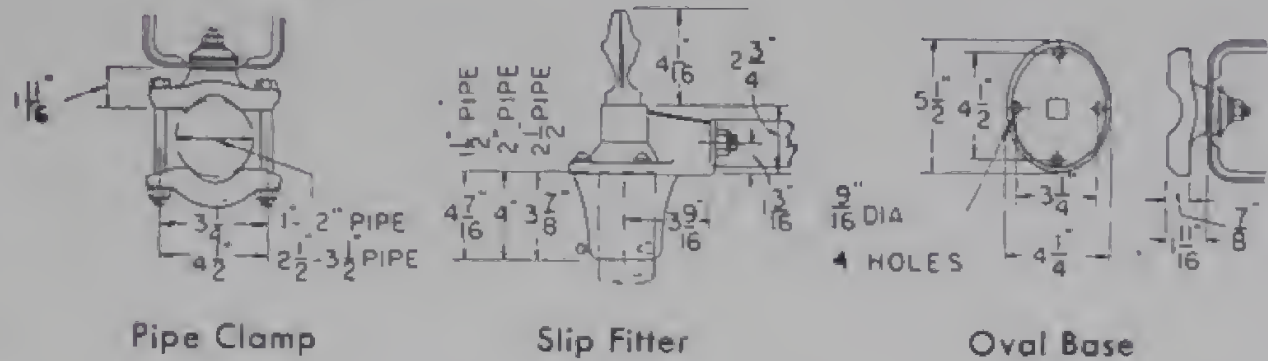
1. Lamp is not included.
2. Plain door glass is furnished, unless otherwise specified. A medium-stippled type is available at no additional charge. It is used with either polished or etched reflector, to widen the light beam; refer to photometric data.
3. For omission of door glass and ring, deduct \$18.50 each.
4. For other mountings, refer to table.

G-E AREA FLOODLIGHT
TYPE L-68 — 750/1500 WATTS

OTHER MOUNTINGS



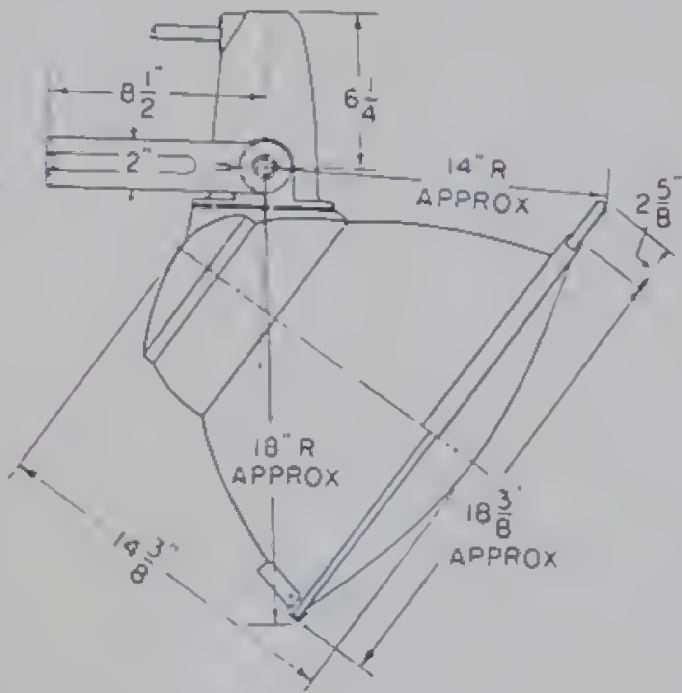
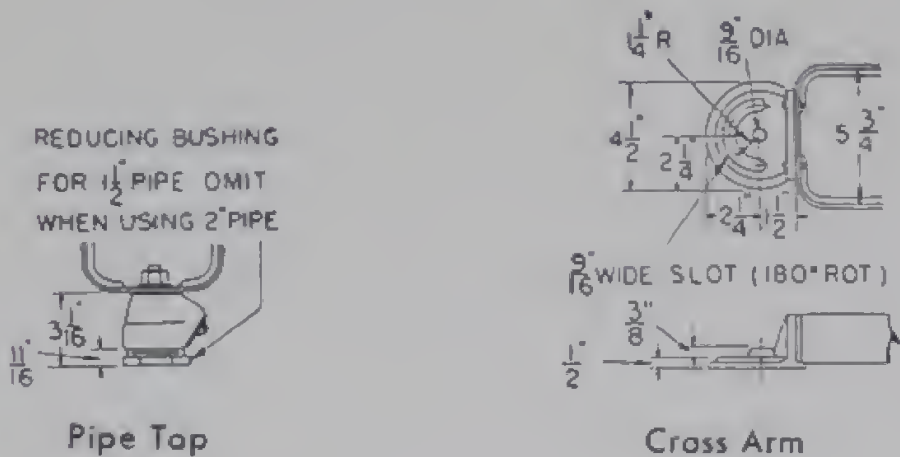
DIMENSIONS



ACCESSORIES AND PARTS

Cat No	*Price Each	Description
4865525G1	\$18.50	Door glass and ring, assembled
4865525G3	18.50	Plain clear Medium stippled
5562041G1	14.75	Door glass only
6687689G1	14.75	Plain clear Medium stippled
4865525G2	10.25	Door ring assembly, less glass
78X332	1.85	Socket
5562262G1	34.50	Reflector
5562262G2	25.85	Polished Alzak fin. alum. Etched Alzak fin. alum.
5552519P1	1.25	Repositioning stop
4553233G2	1.25	Mountings
5556557G1	1.25	Cross arm
5556557G6	1.25	Oval base
5556557G7	1.25	Pipe clamp, 1" to 2"
5556557G3	1.25	Pipe clamp, 2 1/2" to 3 1/2"
5556557G4	2.50	Slip fitter, 1 1/2"
5556557G5	2.50	Slip fitter, 2"
8455304G3	2.50	Slip fitter, 2 1/2" Trunnion bracket

*When purchased separately.



PHOTOMETRIC DATA—FOR ENCLOSED FLOODLIGHT WITH GENERAL-SERVICE LAMP*

Type of Door Glass	Beam Angle in Degrees		Factor "F"	Beam Lumens	Beam Candle-power (Avg Max)	Beam Angle in Degrees		Factor "F"	Beam Lumens	Beam Candle-power (Avg Max)
	Vert	Hor				Vert	Hor			
REFLECTOR: POLISHED ALZAK ALUMINUM						REFLECTOR: ETCHED ALZAK ALUMINUM				
Plain	30	33	0.54	15,680	166,000	75	78	1.58	17,590	43,000
Medium stippled	62	70	1.30	18,190	48,300	94	96	2.18	18,090	26,200

*Lamp: 1500-watt general-service lamp PS-52 clear bulb 9 1/2-in. light-centre length; 33,000 lumens.
Data are approximate, for estimating. Photometric prints furnished upon request.
Factor "F" times distance from projector gives approximate diameter of

beam pattern on a surface at right angles to axis of light beam.
For smaller lamps, reduce lumen and candlepower values approximately in proportion to lamp wattage.
When door glass is omitted, lumen and candlepower values will be increased by 5 to 10 per cent.

G-E SPORTS FLOODLIGHT

TYPE L-69 — 1500 WATTS



A new floodlight for sports fields and recreation areas which will reduce installation and maintenance costs. Every worthwhile feature, from the results of long engineering experience, is incorporated in this floodlight — spun-in glass front — impact-resisting tempered plate glass — rifle sights and both horizontal and vertical degree scales — outstanding high beam efficiency — choice of three beam spreads.

New Narrow Beam L-69

For such applications as stadiums where floodlights are mounted more than 150 feet from the side lines, and railroad yards where long narrow areas are involved.

Provides superior utilization of light — equal if not greater than that usually obtained with heavy-duty more expensive floodlights. The L-69 narrow beam floodlight, where applicable, will produce better results with the general service lamp than the heavy-duty type using a floodlight lamp.

In addition, the L-69 offers higher initial output, lower cost, and easier maintenance.

Cat. No.	Price Each	Description	Weight (Lbs.)	
			Ship.	Net
COMPLETE FLOODLIGHTS				
A54G7	\$63.00	Medium beam polished	29	18½
A54G17	59.00	Wide beam etched	29	18½
A54G8	63.00	Narrow beam polished	29	18½
ACCESSORIES AND PARTS				
78X332	\$ 1.75	Socket		
8475970G2	59.00	Reflector Medium beam polished Alzak fin. aluminum		
8475970G4	50.00	Wide beam etched Alzak fin. aluminum		
8475970G5	59.00	Narrow beam polished Alzak fin. aluminum		

NOTE: Prices on reflectors include front glass, collar, and latches. Lamp not included; use 1500-watt general-service lamp, PS-52 clear bulb, 9½-in. light-centre length.

G-E SPORTS FLOODLIGHT

TYPE L-69 — 1500 WATTS



It's easy to put the center of the L-69's beam right on an aiming point with the notch (1) and blade (2) rifle sight. Saves time in tuning up installation for best light coverage of field. Note how workman uses handy built-on wrench to release clamping bolt.



Handy "built-on" clamping-bolt wrench saves time and effort in adjusting the light or in tilting the reflector for servicing. No tools to carry (to drop). The convenient one-side clamping securely locks the light in position. Severe vibration won't move it.



Servicing is as simple as A, B, C! First, release the two quick-acting toggle latches which secure the socket housing to the reflector collar.



Now—and without any need whatever for moving the reflector—lift off the socket housing and the lamp. It weighs only four pounds!



Next slip this heavy stainless steel clip over the trunnion bracket as shown in the next illustration . . .



And now with both hands free you're ready to service the light. Arrow shows auxiliary reflector, rigidly mounted.

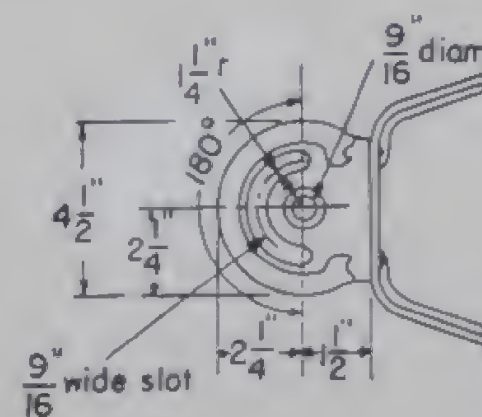
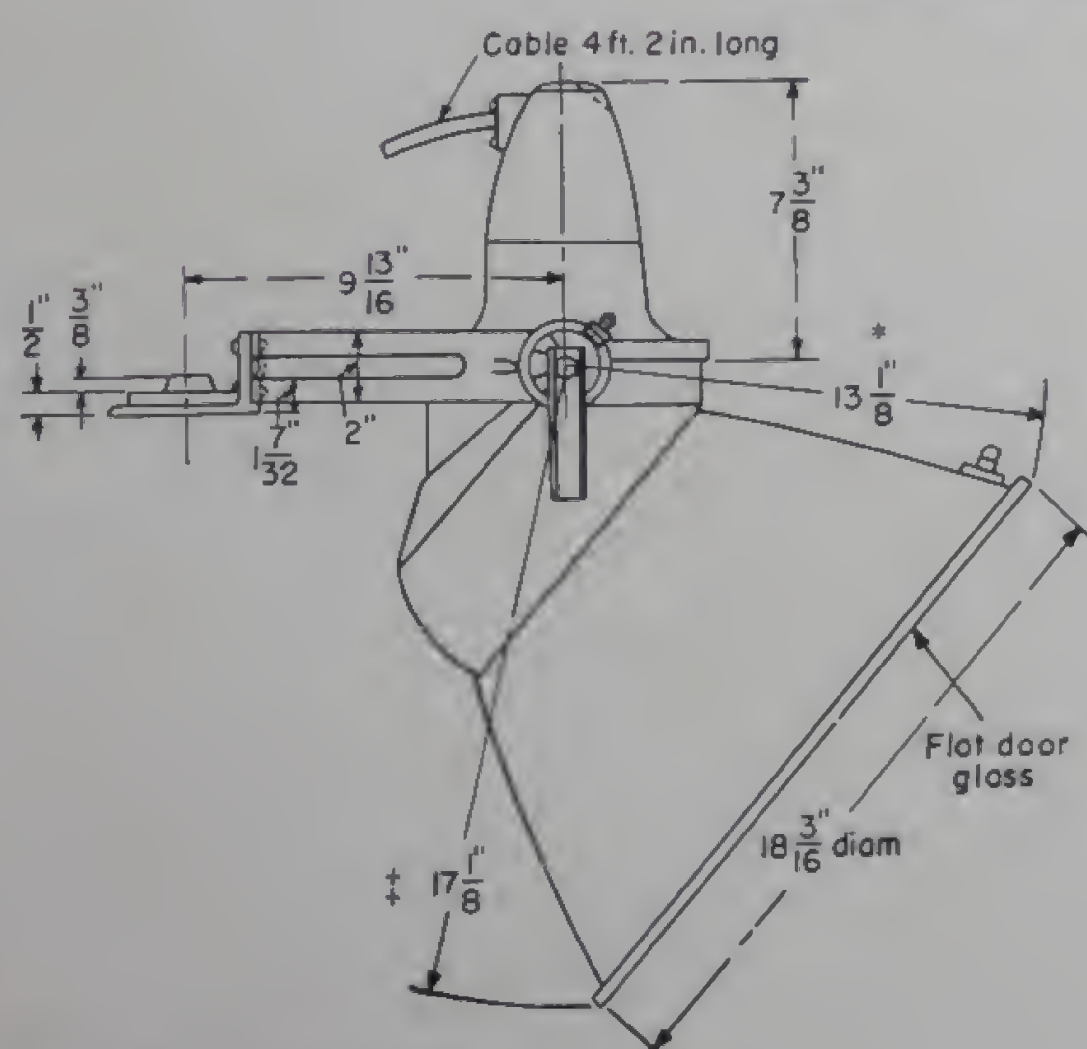


See how easily you can clean the reflector, without tilting it.



Tilting the reflector is easy if it ever becomes necessary. No tools required and reflector always returns to its original position.

DIMENSIONS AND PHOTOMETRIC DATA



PHOTOMETRIC DATA†

Reflector Description	Beam Angle in Degrees		Factor "F"	Beam Lumens	Beam Candle-pwr Avg-Max
	Vert	Hor			
Medium beam	29	33	0.56	16,600	185,000
Wide beam	72	84	1.62	18,580	46,200
Narrow beam	..	..	..	14,600	253,800

†With 1500-watt general-service lamp, PS-52 clear bulb, 9 1/2-in. light-centre length, 33,000 lumens operated at rated voltage.

*Narrow Beam *11 1/8 †15 3/8

CANADIAN
GENERAL ELECTRIC

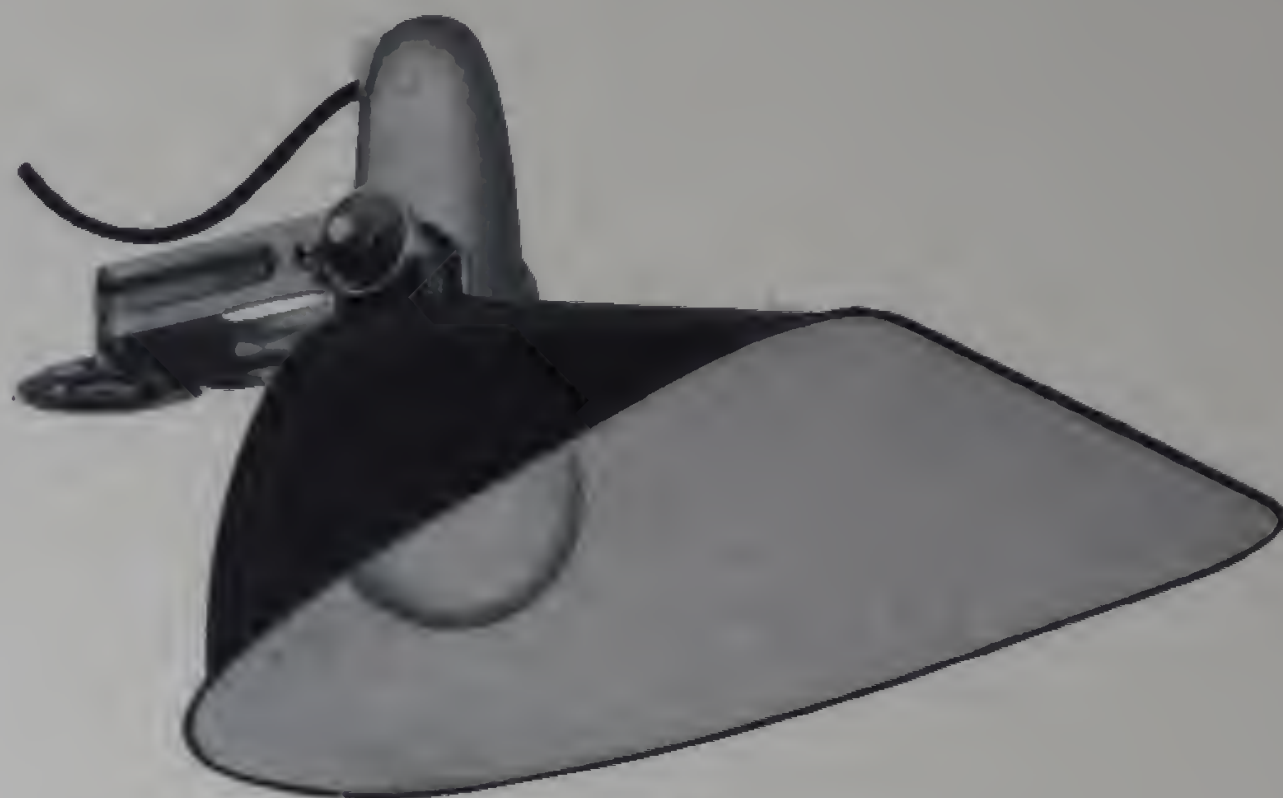
G-E AREA FLOODLIGHT

TYPE L-45 AND L-46 — 300/1500 WATTS

PORCELAIN ENAMEL OPEN TYPES



Type L-45



Type L-46

Inexpensive, durable, open floodlights with porcelain-enamelled reflector, for close-range illumination of filling stations, work, storage, parking, and sports areas, playgrounds, etc. Auxiliary Alzak finished aluminum reflectors provide increased illumination of areas or buildings that require special emphasis.

Features of L-45 and L-46

1. Watertight cable snubbing gland.
2. Cast aluminum socket housing, aluminum-paint finish.
3. 4-foot cable (2-conductor No. 12) for convenient wiring.
4. Sturdy, malleable-iron cross arm mounting provides full 180-degree rotation. Degree scale. Galvanized.
5. Heavy steel trunnion bracket strongly bolted to base. Galvanized.
6. Degree scale aids initial setting and servicing. Adjustable repositioning stop available at slight additional charge.
7. Heavy-duty, porcelain-shell mogul socket keeps lamp in fixed focus. Includes lamp grip.
8. Convenient one-side clamping.
9. Asbestos-treated gasket makes joint watertight.
10. Highly efficient, long-life, porcelain-enamelled, steel reflector, double-coated green outside, triple-coated white inside.
11. Steel ring distributes pressure of attachment screws; prevents chipping enamel.

Cat. No.	Price Each	Type of Auxiliary Reflector Included	Weight (Lbs.)	
			Ship.	Net
TYPE L-45, CROSS ARM MOUNTING; 750/1500 WATTS*				
A41G13	\$21.00	None		
A41G23	25.00	Etched Alzak aluminum	26	17
A41G33	29.00	Polished Alzak alum.		
TYPE L-46, CROSS ARM MOUNTING; 750/1500 WATTS*				
A43G13	\$35.00	None		
A43G23	39.00	Etched Alzak aluminum	30	21
A43G33	43.00	Polished Alzak aluminum		

Lamp not included.

*For use with 300- or 500-watt lamp, order similar to above catalogue number, and deduct \$1.25 each.

For other mountings and price additions, refer to table below.
For vertical repositioning stop, add \$1.25 each.

ACCESSORIES AND PRINCIPAL PARTS

Cat. No.	*Price Each	Description
78X332	\$1.85	Socket
4830754P3	11.00	Reflector, porc.-enamel for L-45
4830164P1	24.50	Reflector, porc.-enamel for L-46
4865094G2	4.00	Auxiliary, etched aluminum
4865094G1	8.00	Auxiliary, polished aluminum
5552519P1	1.25	Repositioning Stop Assembly
Mountings		
4553233G2	1.25	Cross arm
5556557G1	1.25	Oval base
5556557G6	1.25	Pipe clamp, 1" to 2"
5556557G7	1.25	Pipe clamp, 2½" to 3½"
5556557G3	2.50	Slip fitter, 1½"
5556557G4	2.50	Slip fitter, 2"
5556557G5	2.50	Slip fitter, 2½"
8455304G3	2.50	Trunnion bracket

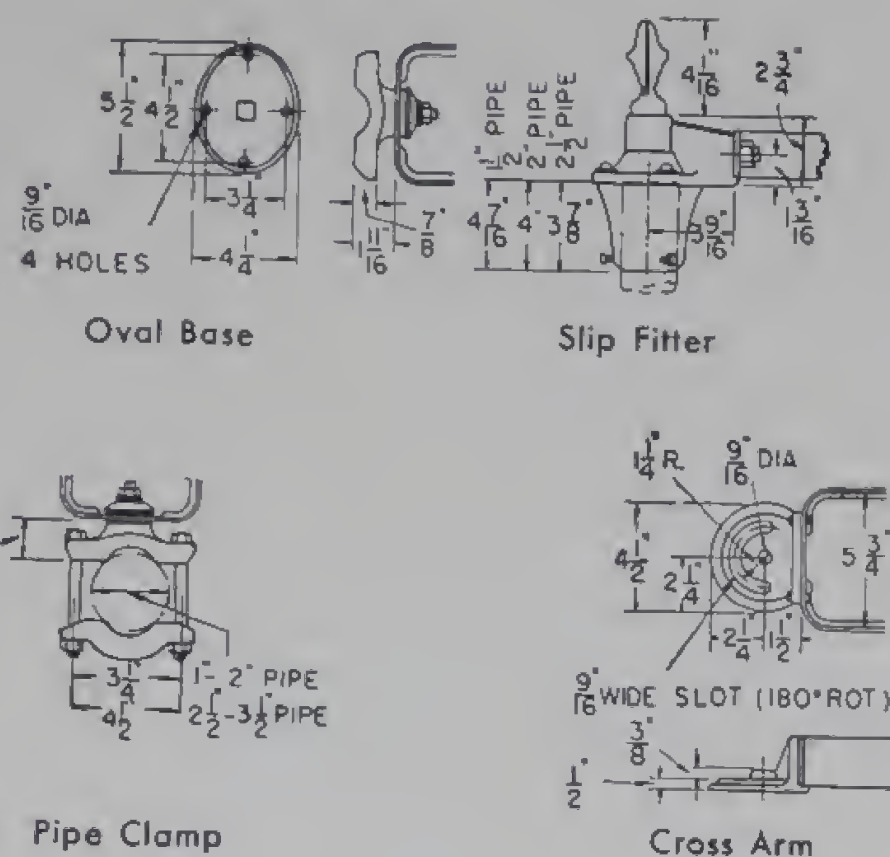
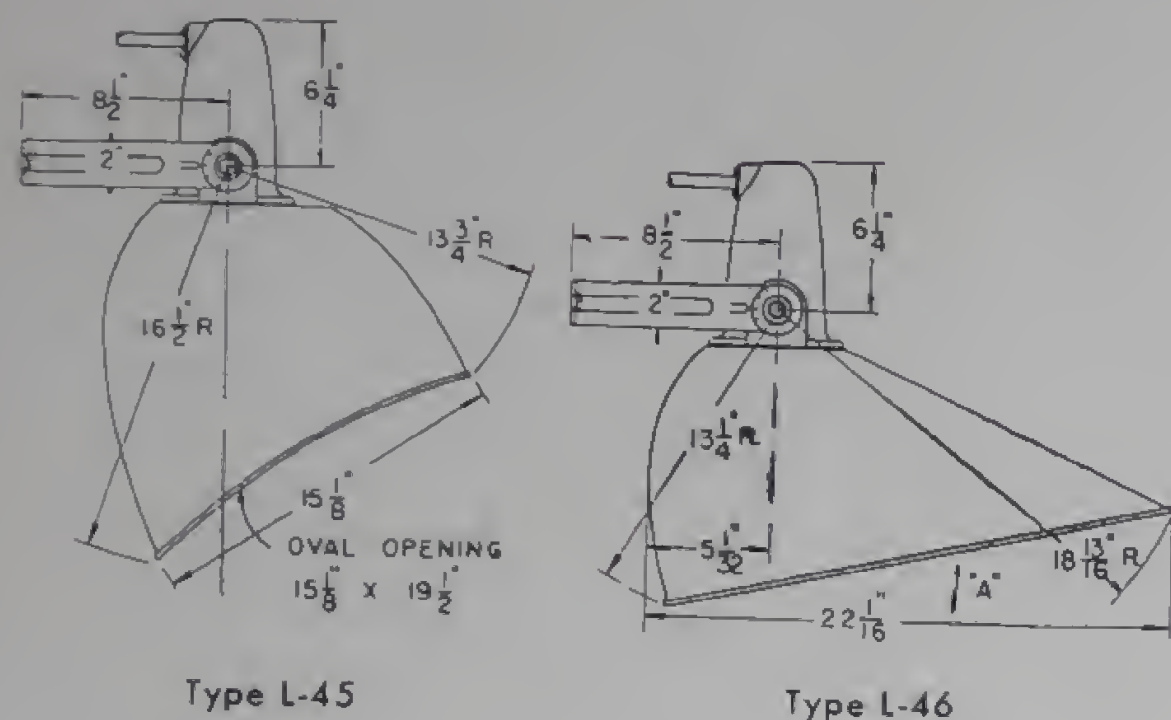
*When purchased separately.

G-E AREA FLOODLIGHT

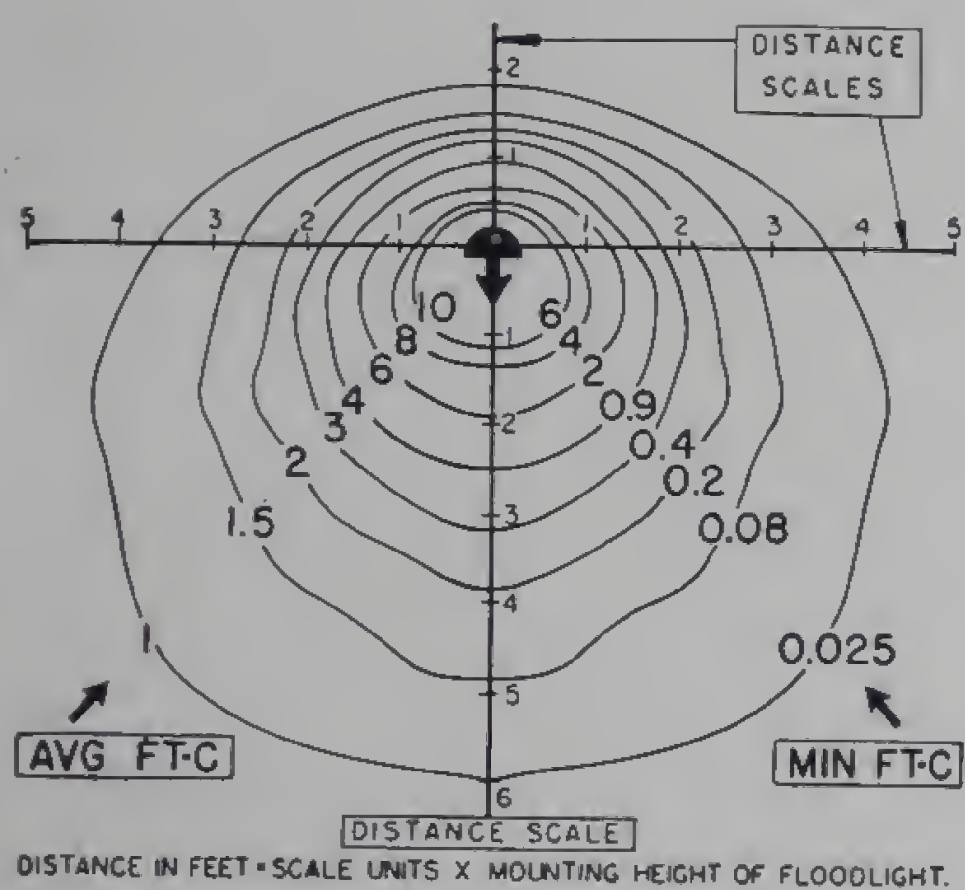
TYPE L-45 AND L-46 — 300/1500 WATTS

PORCELAIN ENAMEL OPEN TYPES

DIMENSIONS



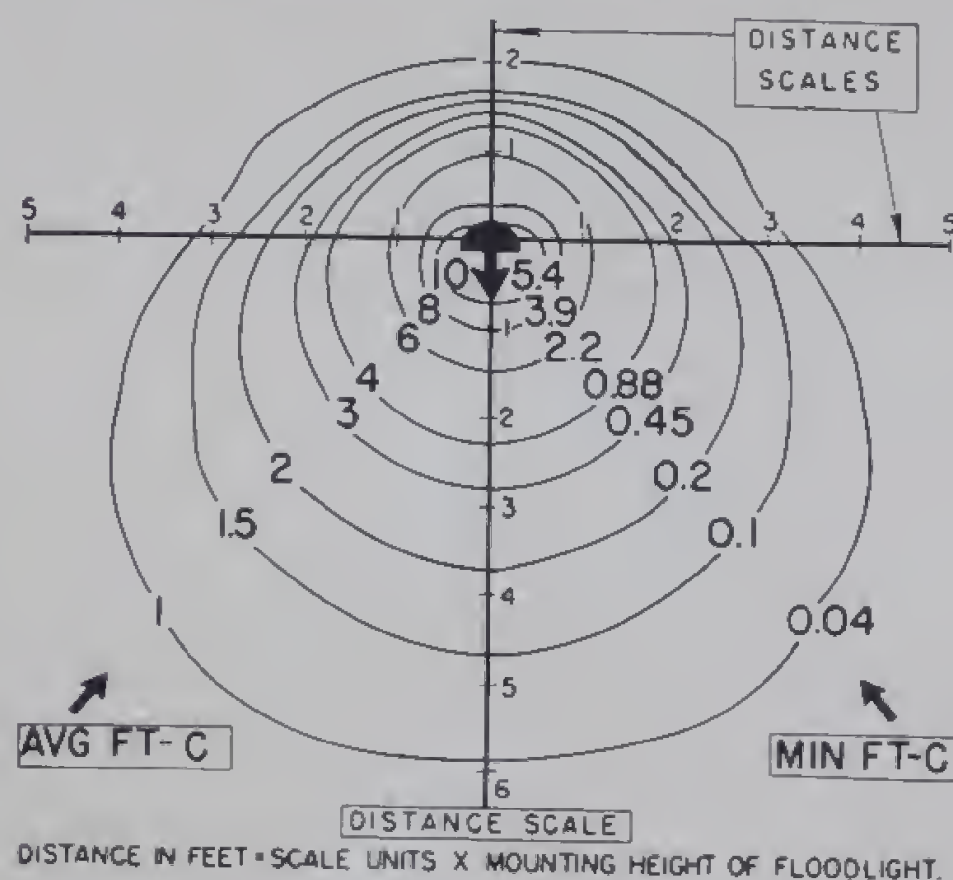
LIGHT COVERAGE PATTERN



Type L-45 floodlight, 1500-watt general-service lamp, 20 feet high, no auxiliary reflector. "Avg. FT-C"—Average illumination in foot-candles in the area outlined by the circle. "Min. FT-C"—Minimum illumination in foot-candles at the edge of the area outlined by the circle.

SMALLER LAMPS		HIGHER MOUNTING	
For This Lamp	Reduce Foot-Candles to This Fraction	For This Height	Reduce Foot-Candles to This Fraction
1500 watts	No reduction	20 ft	No reduction
1000	$\frac{2}{3}$	25	$\frac{2}{3}$
750	$\frac{1}{2}$	30	$\frac{1}{2}$
500	$\frac{1}{3}$	35	$\frac{1}{3}$
300	$\frac{1}{5}$	40	$\frac{1}{4}$
		45	$\frac{1}{5}$
		50	$\frac{1}{6}$

LIGHT COVERAGE PATTERN

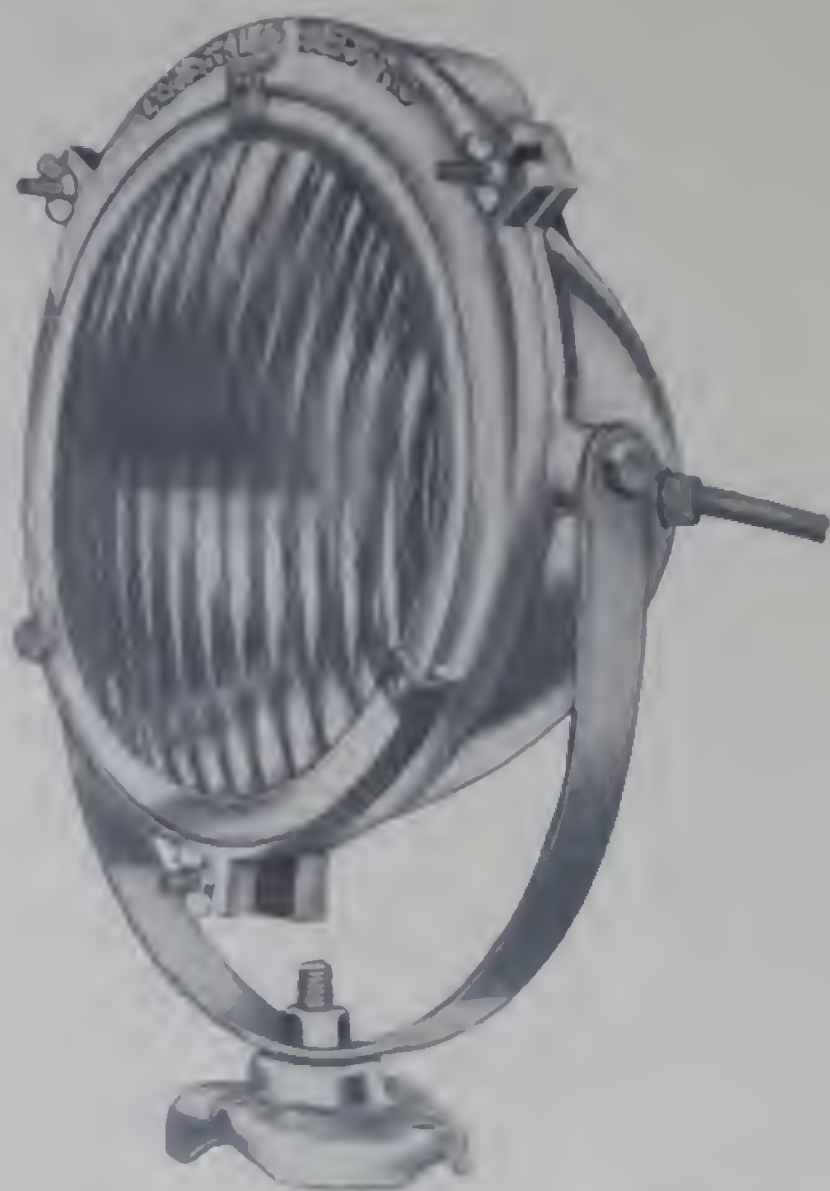


Type L-46 floodlight, 1500-watt general-service lamp, 20 feet high, no auxiliary reflector. "Avg. FT-C"—Average illumination in foot-candles in the area outlined by the circle. "Min. FT-C"—Minimum illumination in foot-candles at the edge of the area outlined by the circle.

SMALLER LAMPS		HIGHER MOUNTING	
For This Lamp	Reduce Foot-Candles to This Fraction	For This Height	Reduce Foot-Candles to This Fraction
1500 watts	No reduction	20 ft	No reduction
1000	$\frac{2}{3}$	25	$\frac{2}{3}$
750	$\frac{1}{2}$	30	$\frac{1}{2}$
500	$\frac{1}{3}$	35	$\frac{1}{3}$
300	$\frac{1}{5}$	40	$\frac{1}{4}$
		45	$\frac{1}{5}$
		50	$\frac{1}{6}$

G-E HEAVY DUTY FLOODLIGHT

TYPE L-38 — 200/250 WATTS



Type L-38-B floodlight for general service lamp



Type L-38-B portable for general service lamp

A sturdy cast aluminum casing makes this compact and inexpensive floodlight popular for rough-service applications — such as on power shovels. However, a variety of beam spreads and mountings adapt it to all common floodlighting uses. Also available with large base, carrying handle and 10-foot cord for portable emergency applications.

FEATURES

1. Heavy-duty medium screw-base socket rigidly mounted to keep lamp in fixed focus.
2. Extra strong door clamps assure tight joint.
3. Sturdy cast aluminum casing and door.
4. Clamping bolts easily accessible; maintain aiming directions securely.
5. 4-foot cable (2-conductor No. 12) for convenient wiring.
6. Heavy-steel trunnion bracket permits aiming in any direction; galvanized.
7. Door and glass sealed with waterproofed asbestos gaskets.
8. High efficiency, long life reflector silvered-glass or Alzak finished aluminum.
9. Heat and weather-resisting molded door glass.
10. Combination clamping and hinge bolt supports door when opened.
11. Large malleable-iron base for surface mounting; galvanized.

Cat. No.	Price Each	Type	Weight (Lbs.)	
			Ship.	Nel

TYPE L-38-B FOR GENERAL SERVICE LAMPS (PS-30)

A48G42	\$53.00	Standard Silvered-glass Reflector.....	22	16
A48G62	53.00	Standard Alzak aluminum Reflector	22	16
A48G24	61.50	Portable and Alzak aluminum Reflector.	22	16

TYPE L-38-C FOR FLOODLIGHTING SERVICE LAMP (G-30)

A48G52	\$53.00	Standard Silvered-glass Reflector.....	22	16
A48G72	53.00	Standard and Alzak aluminum Reflector.	22	16
A48G34	61.50	Portable Alzak aluminum Reflector.	22	16

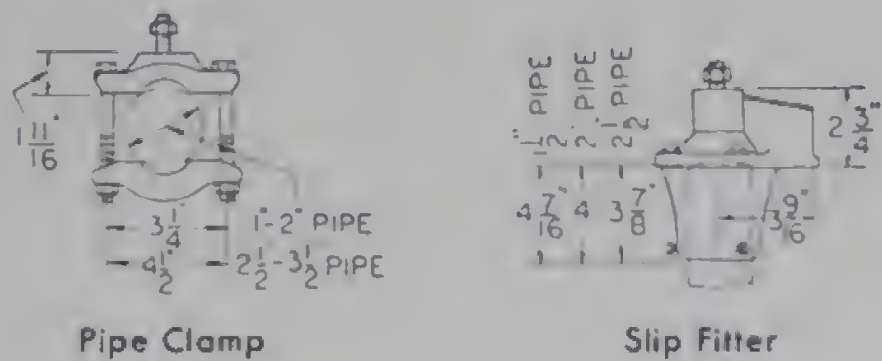
1. Lamp is not included.
2. Plain door glass furnished unless otherwise specified. Lightly or heavily stippled, or spreadlight at no additional charge.
3. Oval base mounting furnished on standard floodlight unless otherwise specified. Pipe clamp or slip fitter mounting supplied at no additional charge.

G-E HEAVY DUTY FLOODLIGHT

TYPE L-38 — 200/250 WATTS

MOUNTINGS

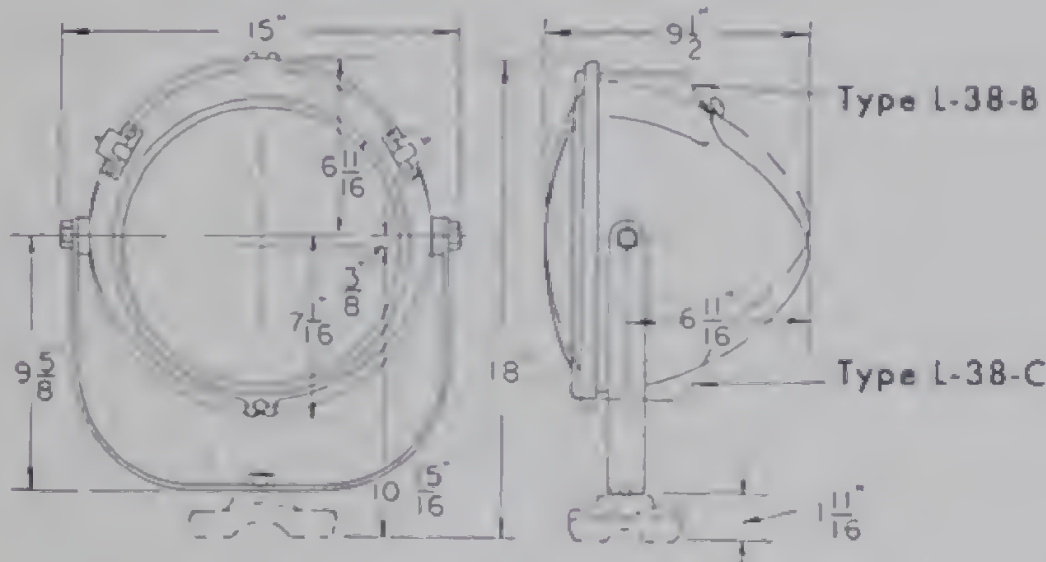
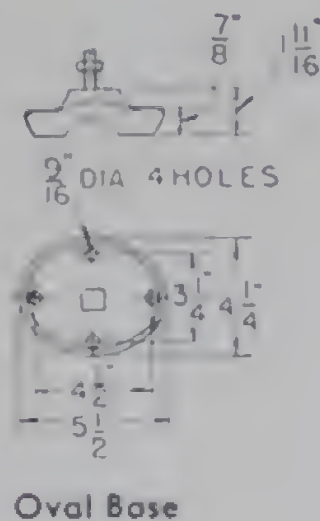
DIMENSIONS



ACCESSORIES AND PARTS

Cat. No.	*Price Each	Description
4830572G1	\$6.25	Door Glass (not coloured)
4830574G1	6.25	Plain clear
4830573G1	6.25	Lightly stippled
		Heavily stippled
8478259	\$1.25	Socket
4830549P1	\$11.00	Reflector
4865149G1	11.00	Silvered glass
		Polished Alzak finished aluminum
3778762	\$5.50	Visor
4830860G4	\$2.50	Mountings
4830860G9	2.50	Oval base
4830860G10	2.50	Pipe clamp, 1" to 2"
5556557G10	2.50	Pipe clamp, 2 1/2" to 3 1/2"
5556557G11	2.50	Slip fitter, 1 1/2"
5556557G12	2.50	Slip fitter, 2"
8475097G3	4.90	Slip fitter, 2 1/2"
		Circular base (11")

*When purchased separately.



PHOTOMETRIC DATA—FOR FLOODLIGHT WITH SILVERED GLASS REFLECTOR

Type of Door Glass	Beam Angle in Degrees		Factor "F"	Beam Lumens	Beam Candle-power (Avg Max)	Beam Angle in Degrees		▲Factor "F"	Beam Lumens	Beam Candle-power (Avg Max)
	Vert	Hor				Vert	Hor			
L-38-B WITH PS-30 CLEAR LAMP*						L-38-C WITH G-30 CLEAR LAMP†				
Plain	26	30	0.50	1350	16,200	14	16	0.26	1345	67,700
Lightly stippled	38	41	0.72	1375	9,240	31	33	0.57	1445	13,820
Heavily stippled	80	80	1.68	1760	3,500	65	69	1.32	1795	4,910
Spreadlight	28	58	0.50 x 1.11	1505	8,640	18	52	0.32 x 0.98	1480	15,250

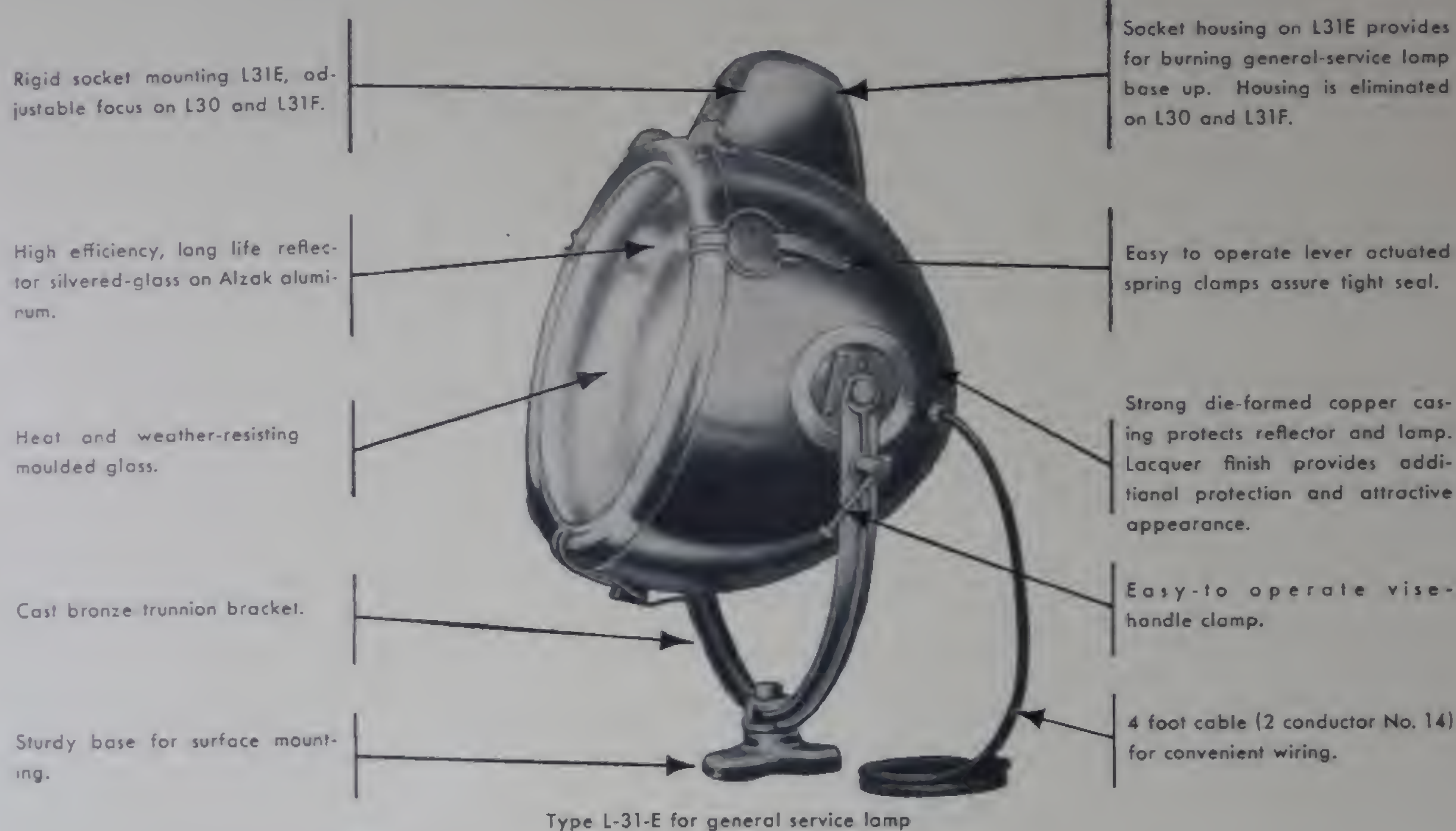
*200-watt G.E. Multiple general-service lamp, PS-30 clear bulb; 6-in. light-centre length; 3500 lumens.
†250-watt G.E. Multiple floodlighting-service lamp, G-30 clear bulb; 3-in. light-centre length; 3850 lumens.

‡Data are approximate, for estimating.
▲Factor "F" times distance from projector to surface lighted gives approximate diameter of beam pattern.

G-E HEAVY DUTY COPPER-BRONZE FLOODLIGHTS

TYPE L-30 — 300/500 WATTS

TYPE L-31 — 750/1000 WATTS



This high-quality all-purpose projector features a highly efficient silvered-glass or aluminum narrow-beam reflector in a sturdy, attractive copper casing which assures long life under severe atmospheric conditions. Several useful beam spreads are obtained with different door glasses.

SILVERED-GLASS REFLECTORS

For maximum efficiency, G-E engineers recommend silvered-glass reflectors.

Since these reflectors have the G-E porcelain-enamel backing, there is no danger of deterioration resulting from high temperature and moisture. This method of manufacture seals the silver surface between two layers of glass, thus preventing any possibility of oxidation or separation.

Accelerated tests, as well as service experience, have proved the durability of this silvering. Therefore, with the mechanical protection afforded by these sturdy floodlight casings, the use of glass reflectors is practical under all conditions,

except those involving extremely rough usage. In such instances, the aluminum reflectors listed with this floodlight are recommended.

PRICES COMPLETE FLOODLIGHTS

Cat. No.	Price Each	Type of Reflector	Approx. Wt. (Lbs.)	
			Ship	Net
TYPE L-30-E FOR GENERAL SERVICE LAMP (PS-40)				
L30EA	\$84 00	Silvered glass.....	52	31
L30EB	84 00	Alzak Aluminum.....	52	31
TYPE L-30-F FOR FLOODLIGHT SERVICE LAMP (G-40)				
L30FA	\$84 00	Silvered glass.....	52	31
L30FB	84 00	Alzak Aluminum.....	52	31
TYPE L-31-E FOR GENERAL SERVICE LAMP (PS-52)				
L31EC	\$105 00	Silvered glass.....	56	33
L31ED	105 00	Alzak Aluminum.....	56	33
TYPE L-31-F FOR FLOODLIGHT SERVICE LAMP (G-40)				
L31FA	\$105 00	Silvered glass	52	31
L31FB	105 00	Alzak Aluminum.....	52	31

- Lamp is not included.
- Plain door glass furnished unless otherwise specified. Lightly or heavily stippled, or spreadlight at no additional charge.
- Oval base mounting furnished unless otherwise specified. Pipe clamp, slip fitter or pipe top mounting supplied at no additional charge.

G-E HEAVY DUTY COPPER-BRONZE FLOODLIGHTS

TYPE L-30 — 300/500 WATTS

TYPE L-31 — 750/1000 WATTS

MOUNTINGS

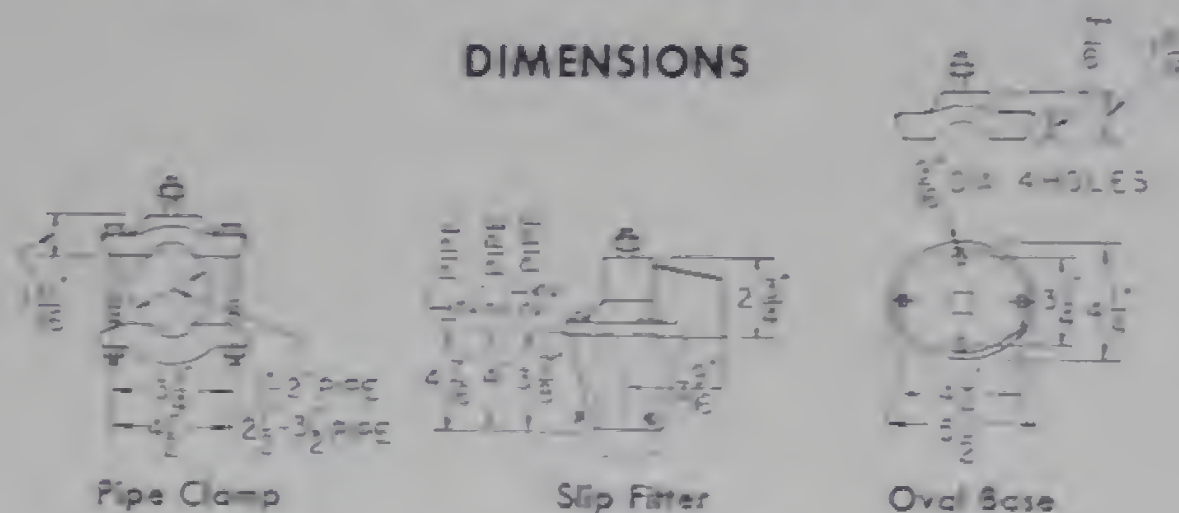
DIMENSIONS



Pipe Clamp

Slip Fitter

Oval Base



Pipe Clamp

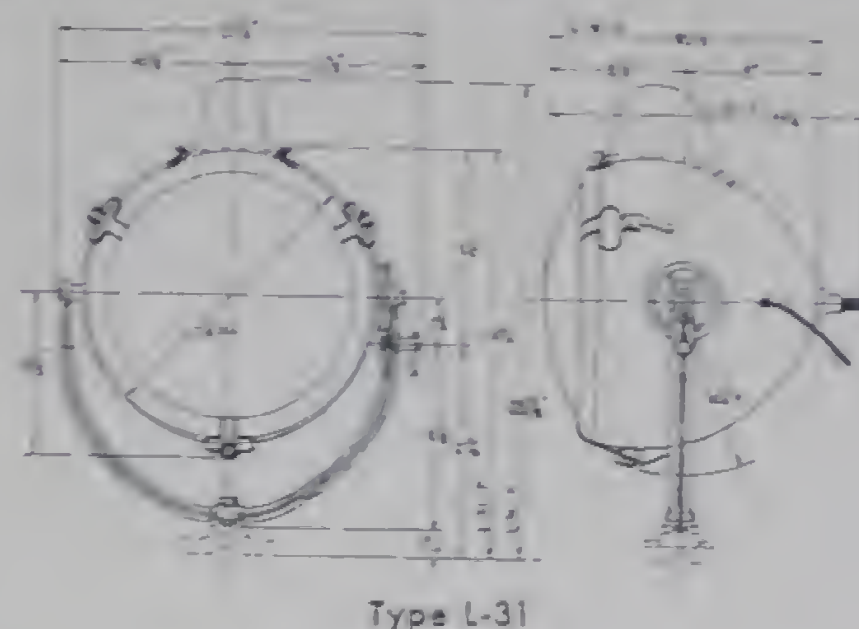
Slip Fitter

Oval Base

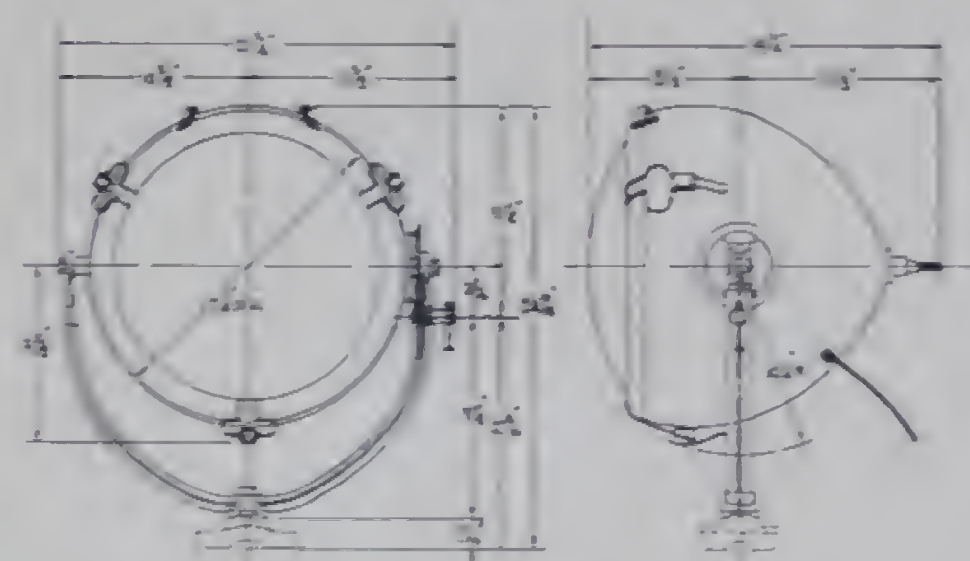
ACCESSORIES AND PARTS

Cat No	*Price Each	Description
4830571G1	\$11 00	Door glass (not coloured) Plain clear
4830570G1	11 00	Lightly stippled
4830569G1	11 00	Heavily stippled
3706486G1	11 00	Spread light
45X841	1 45	Socket
3740770G1	26 00	Reflector Silvered glass for L-30
4865078G1	26 00	Alzak aluminum for L-30
3758242P1	26 00	Silvered glass for L-31-E
3740770G1	26 00	Silvered glass for L-31-F
4865079G1	26 00	Alzak fin. alum. for L-31-E
4865078G1	26 00	Alzak fin. alum. for L-31-F
45553233G13	2 50	Mountings Oval base
45553233G11	2 50	Pipe clamp, 1' to 2'
45553233G12	2 50	Pipe clamp, 2 1/2' to 3 1/2'
45553233G14	2 50	Slip fitter, 1 1/2'
45553233G15	2 50	Slip fitter, 2'
45553233G16	2 50	Slip fitter, 2 1/2'
5556557G25	2 50	Pipe top, 1 1/2' or 2'

*When purchased separately.



Type L-31



Type L-30

PHOTOMETRIC DATA—FOR FLOODLIGHT WITH SILVERED GLASS REFLECTOR

Type of Door Glass	Beam Angle in Degrees		Factor "F"	Beam Lumens	Beam Candle-power (Avg Max)	Beam Angle in Degrees		Factor "F"	Beam Lumens	Beam Candle-power (Avg Max)
	Vert	Hor				Vert	Hor			
L-30-E WITH PS-40 LAMP*					L-30-F WITH G-40 LAMP†					
Plain	24	25	0 43	4330	64,600	12	11	0 20	4346	331,000
Lightly stippled	32	35	0 60	4454	42,500	25	24	0 43	4226	69,400
Heavily stippled	64	65	1 26	5120	14,900	54	54	1 02	4560	22,100
Spread light	24	52	0 43 x 0 98	4460	32,150	13	44	0 23 x 0 81	4452	60,700
L-31-E WITH PS-52 LAMP‡					L-31-F WITH G-40 LAMP Δ					
Plain	19°	26°	0 40	8056	173,500	14°	14°	0 25	9488	425,600
Lightly stippled	31°	36°	0 60	8738	87,100	25°	25°	0 44	9520	157,400
Heavily stippled	64°	72°	1 35	10876	30,900	55°	55°	1 04	10158	44,400
Spread light	22°	52°	0 39 x 0 98	8856	80,400	15°	42°	0 27 x 0 79	9662	109,400
Asymmetric	30°	60°	0 51 x 1 15	8758	71,600	17°	49°	0 30 x 0 91	8534	110,200

*500-watt general-service lamp. PS-40 clear bulb. 7-in. light-centre length. 9450 lumens.

†500-watt floodlighting-service lamp. G-40 clear bulb. 4 1/4-in. light-centre length. 9800 lumens.

‡1000-watt general-service lamp. PS-52 clear bulb. 9 1/4-in. light-centre length. 21,000 lumens.

Δ1000-watt floodlighting-service lamp. G-40 clear bulb. 5 1/4-in. light-centre

length. 10,500 lumens.

Data are approximate. Use estimating. Photometric prints furnished on request.

Factor "F" times distance from projector to surface, lighted gives approximate diameter of beam pattern.

For smaller lamps, reduce lumen and candlepower values in proportion to lamp wattage.

G-E HANDY FLOODLIGHTS

TYPE L-65 — 100 WATTS

TYPE L-66 — 200 WATTS



Handy floodlights with wide angle beams, etched surface aluminum reflector, for general-purpose lighting around homes, garages, farm buildings, etc., offering convenience, protection and aid to work or business at night. Inexpensive, durable and compact.

FEATURES OF L-65 AND L-66

1. Highly efficient aluminum reflector with etched (diffuse) inner surface. Natural finish outside.
2. Rigidly mounted medium screw-base socket maintains lamp in fixed focus.
3. 6-foot rubber-covered cord and plug.
4. Molded clear door glass protects lamp and keeps reflector cleaner.
5. U-shaped clamping band and gasket insure tight door seal.
6. Easy adjustment horizontally and vertically with large wing nuts.

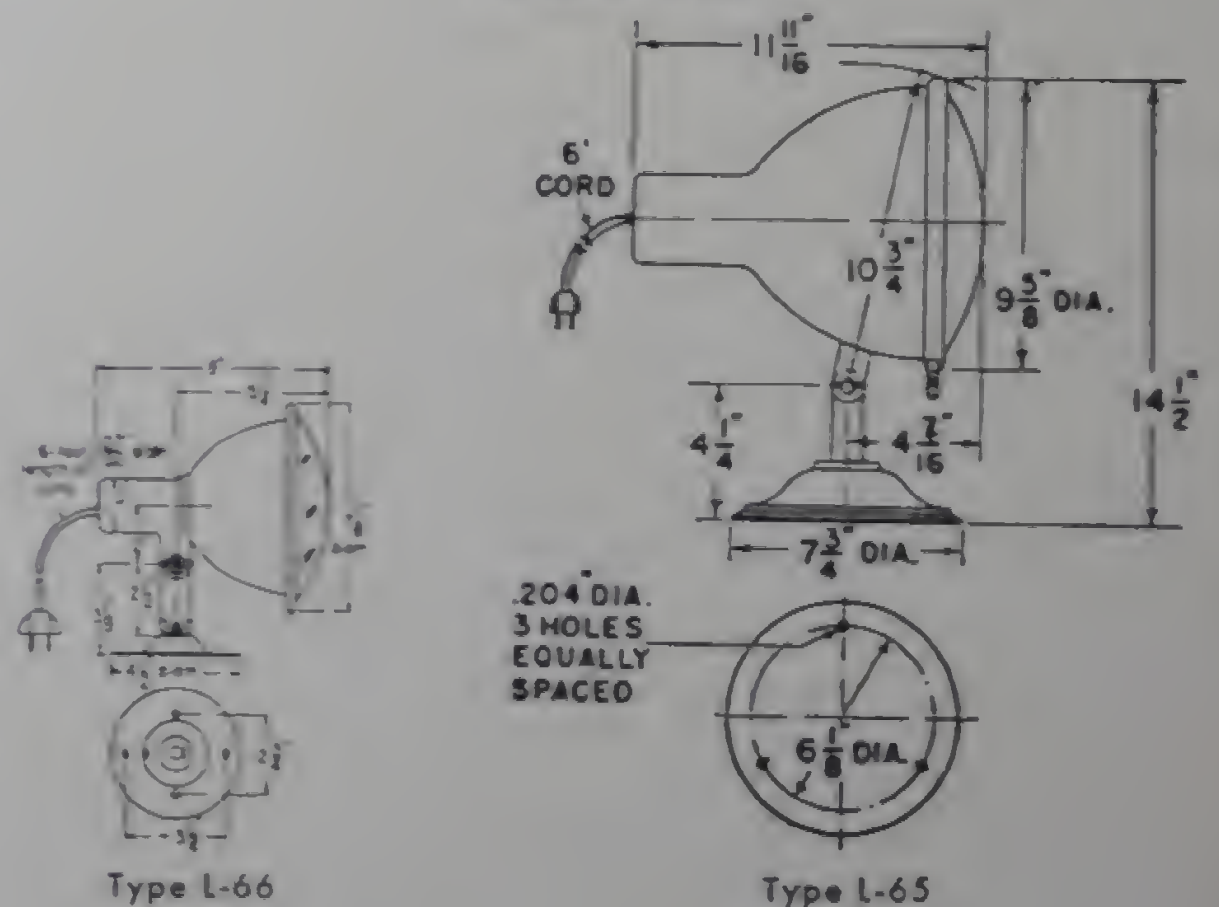
Cat. No.	Price Each	Type	Standard Package		
			Quantity	Weight in Lbs	
				Ship.	Net
A168G1	\$ 5 85	L-65	6	21	10 1/2
A175G4	12 95	L-66	1	7	4

Lamp not included.

Type of Door Glass	Beam Angle		Factor "F"	Beam Lumens	Beam Candle power (Avg Max)
	Vert	Hor			
L-65 FLOODLIGHT USING 100-WATT A21 LAMP*					
Plain	130	130	4.29	980	415
L-66 FLOODLIGHT USING 200-WATT PS-30 LAMP†					
Plain	130	130	4.3	2302	946

*3 3/8-in. light-centre length; 1600 lumens general-service Lamp.
†6-in. light-centre length; 3650 Lumens general-service Lamp.
Data are approximate for estimating.
Factor "F" times distance from projector to surface lighted gives approximate diameter of beam pattern.

DIMENSIONS



G-E PUMP ISLAND LUMINAIRE

FORM 92 — 300/500 WATTS

Highly efficient Alzak -finished aluminum reflector provides wide spread of light without objectional glare.

Three bronze thumb screws with wing lock nuts clamp reflector securely to globe.

Strong crystal-clear rippled glass globe makes a secondary light source of attractive appearance.

Internal steel ring holds globe securely against cushion.

Snug fitting reflector lip provides an effective rain shield.

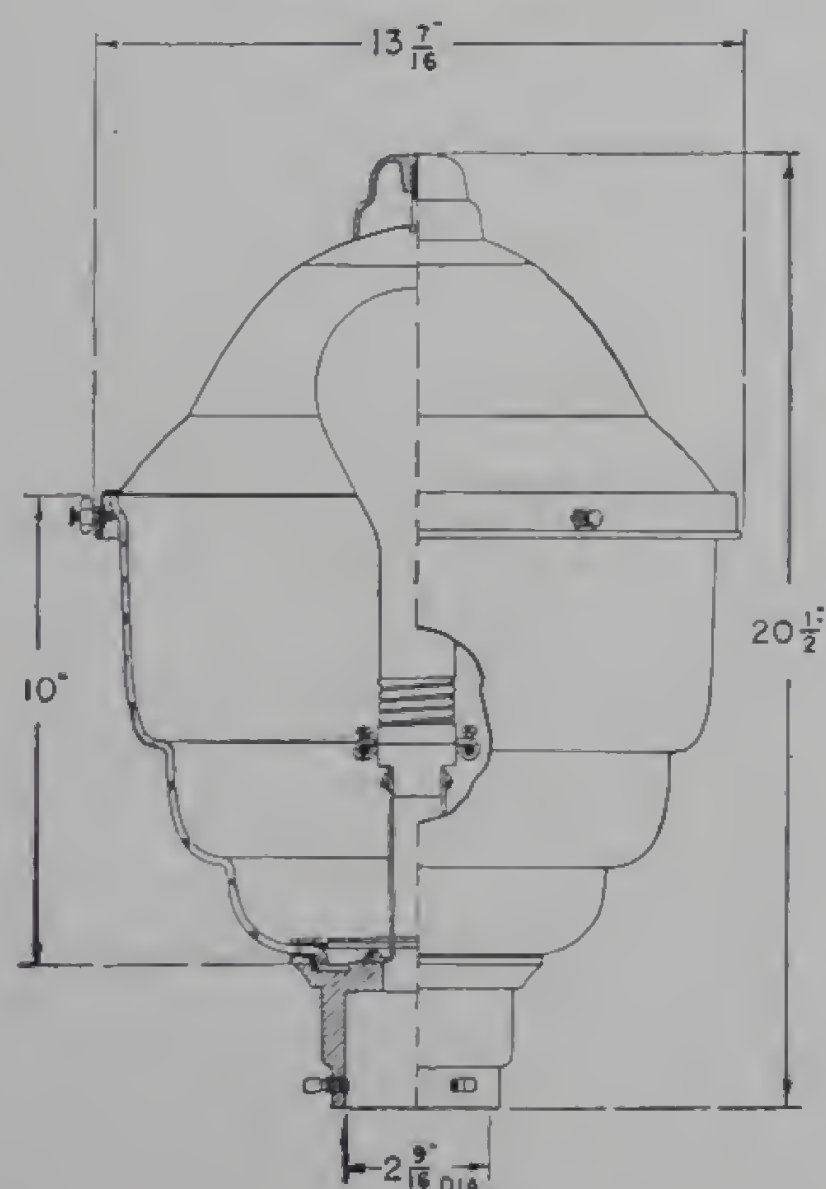
Cork gasket cemented to reflector protects globe edge against damage, keeps out dirt and insects.

Heavy-duty porcelain mogul-base socket rigidly mounted to position lamp properly in relation to reflector.

Sturdy cast-iron base, hot-dipped galvanized, slips over 2-in. pipe, held firmly by setscrews.

An attractive enclosed-type luminaire for lighting gasoline-pump islands and surrounding areas. Fits 2-in. pipe. Easily installed, offering even distribution of light without objectional glare. Highly efficient, easily maintained, and inexpensive.

DIMENSIONS



Cat. No.	Price Each	Description	Weight in Lbs	
			Ship.	Net
COMPLETE UNIT				
A100G1	\$17.25*	Form 92, Pump Island Light.....	20	14
PRINCIPAL PARTS				
5556066G1	9.25	Alzak-finish alumi- num reflector.....	3	1½
211	6.75	Clear rippled globe	8	6
5556075G1	6.75	Base, with Mogul socket and support	9	6½

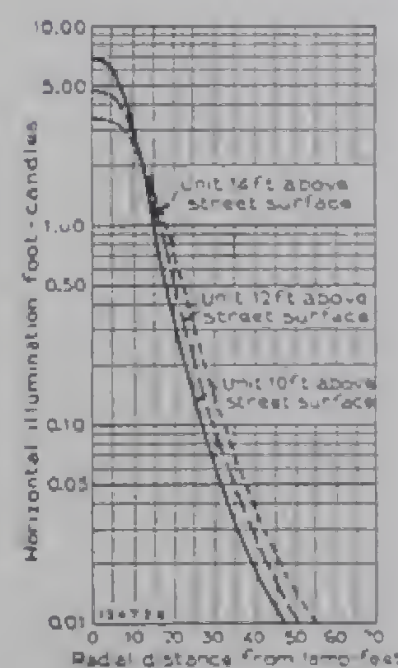
Lamp not included. Use 300- or 500-watt mogul screw-base Lamp.

*Price includes globe.

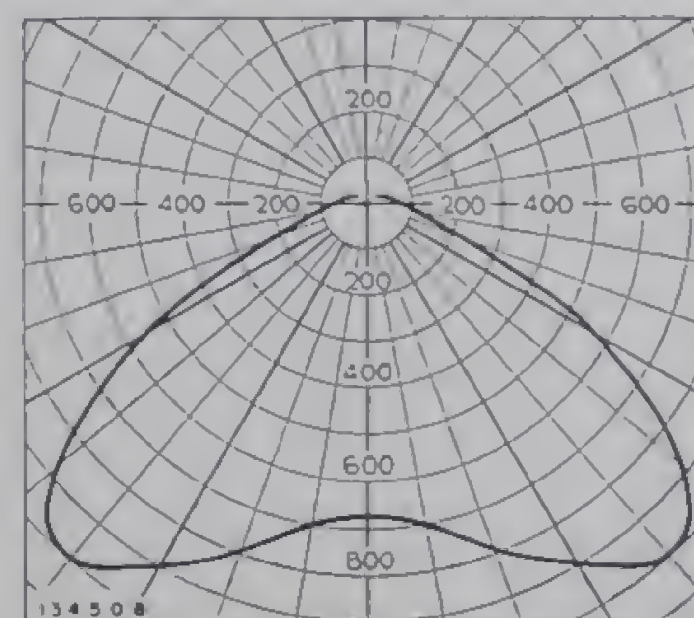
All iron and steel parts are hot-dipped galvanized.

Aluminum reflector natural finish.

PHOTOMETRIC DATA



Illumination
in Foot Candles

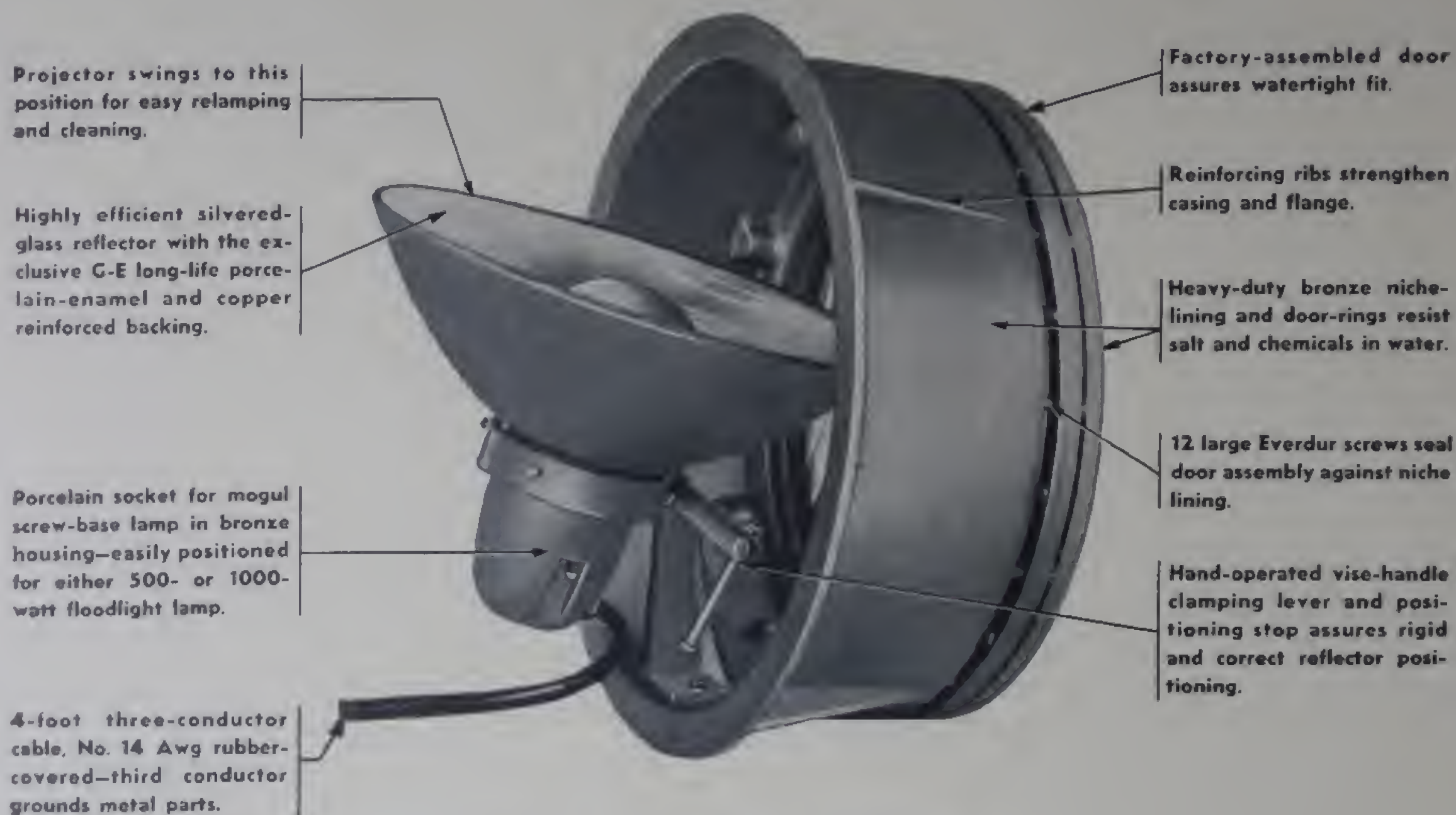


Candle power
Distribution

Above data for 300 watt lamp. When using 500 watt lamp multiply values by 1.75.

G-E DRY-NICHE UNDERWATER FLOODLIGHT

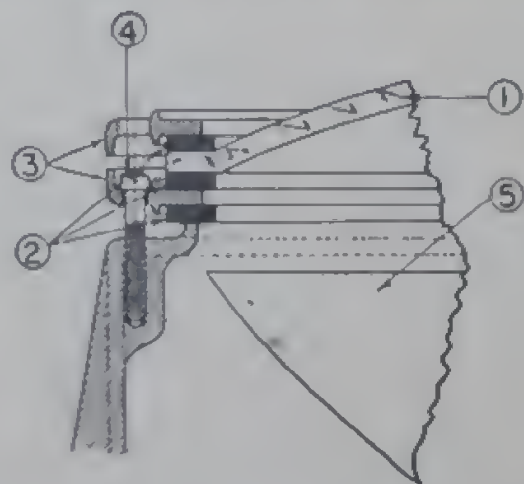
TYPE L-39 — 500/1000 WATTS



Type L-39 underwater floodlight with reflector in position for servicing

This high quality dry-niche underwater floodlight is principally used in swimming pools. It offers high efficiency, a variety of beam angles, easy maintenance, and long life. Cast bronze construction is specially recommended for best results and should be used to prevent deterioration in chemically treated water. Strong, durable, easy to install. Reflector silvered glass.

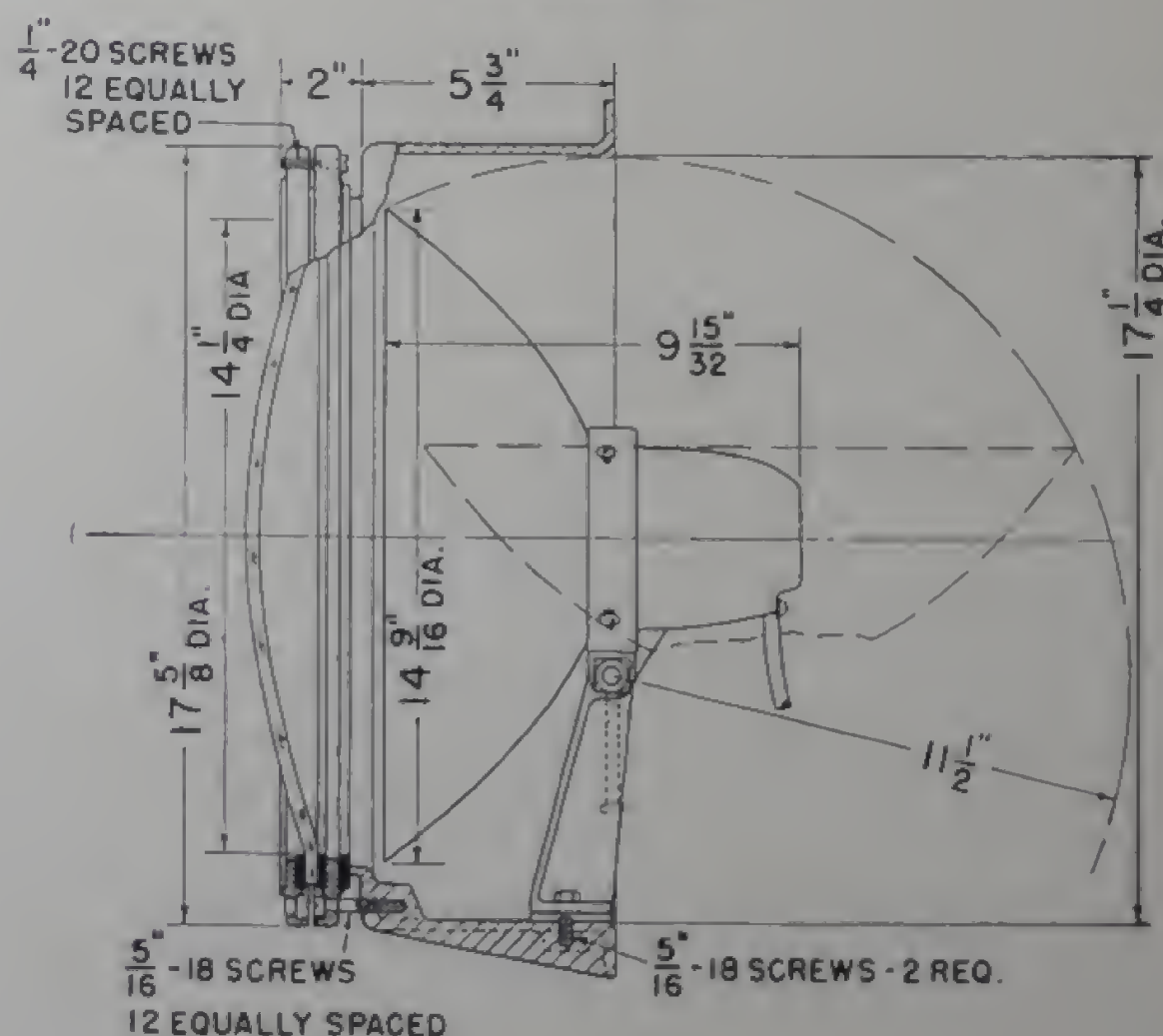
FIVE FEATURES ASSURING LONG LIFE AND LOW MAINTENANCE



1. Sturdy, heat-resisting, molded door glass.
2. Large rubber gaskets assure watertight seal.
3. Double-ring construction protects glass by uniform distribution of pressure.

4. Clamping screws seat on lower ring, to avoid additional pressure on door glass.
5. Highly efficient silvered-glass reflector, correctly positioned for best results.

DIMENSIONS



G-E DRY-NICHE UNDERWATER FLOODLIGHT

TYPE L-39 — 500/1000 WATTS

PHOTOMETRIC DATA

L-39 UNDERWATER FLOODLIGHT WITH G-40 LAMP*

Type of Door Glass	Beam Angle in Degrees		Factor "F"	Beam Lumens	Beam Candle-power (Avg Max)
	Vert	Hor			
Plain.....	13	14	0.24	8840	453,000
Spreadlight.....	13	44	0.23x0.81	8800	109,500
Heavily stippled	54	54	1.02	9175	46,000

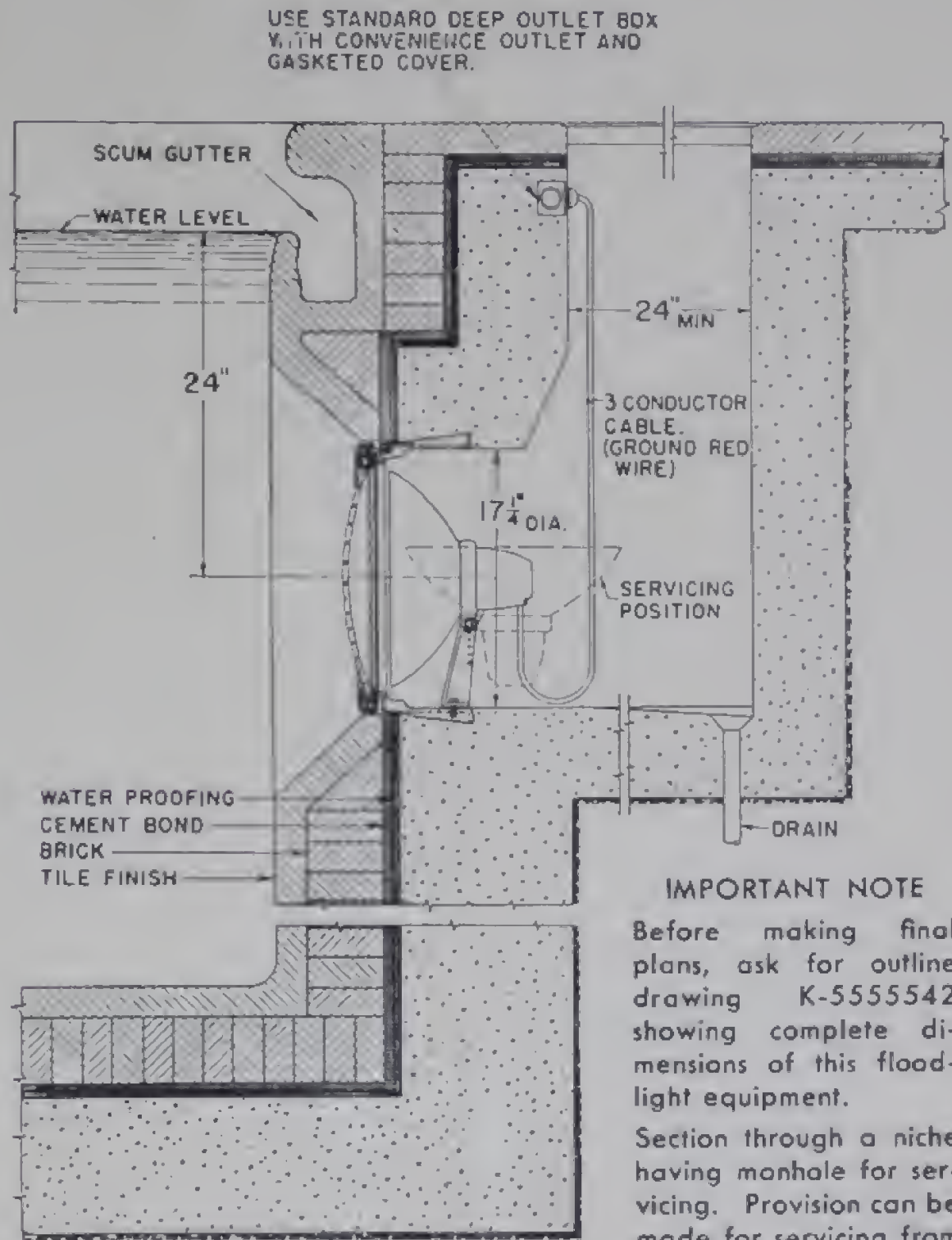
*1000-watt Floodlight Service Lamp, G-40, 5¼-in. light-centre length, 19,500 Lumens.
Data are approximate, for estimating.
Factor "F" times distance from projector to surface lighted gives approximate diameter of beam spread. For smaller lamps reduce lumen and candlepower values approximately in proportion to lamp wattage.

ACCESSORIES AND PRINCIPAL PARTS

Cat. No.	Price* Each	Description
4830571G1	\$11.00	Door Glass—15¾" diameter Plain clear
4830569G1	11.00	Heavily stippled clear
3706486G1	11.00	Spreadlight clear
5550556	1.25 ea.	Gaskets for door glass (3 required)
9437841AAP1	26.00	Silvered-glass reflector
78X332	1.75	Socket

*When purchased separately.

SUGGESTED SWIMMING POOL INSTALLATION PRACTICE



IMPORTANT NOTE

Before making final plans, ask for outline drawing K-555542 showing complete dimensions of this floodlight equipment.
Section through a niche having manhole for servicing. Provision can be made for servicing from a corridor or pipe tunnel, if preferred.

Cat. No.	Price Each	Reflector	Weight in Lbs	
			Ship.	Net
*TYPE L-39 COMPLETE FLOODLIGHT—BRONZE DOOR RING WITH CHROME-PLATED FINISH				
A47G5	\$190.00	Silvered glass	140	77

COMPLETE FLOODLIGHT LISTED ABOVE CONSISTS OF:—

Cat. No. (Above)	Door Assembly			Niche Lining			Projector with Support		
	Cat. No.	Price Each	Ship. Wt in Lbs	Cat. No.	Price Each	Ship. Wt in Lbs	Cat. No.	Price Each	Ship. Wt in Lbs
A47G5	A66G30	\$92.25	30	A66G31	\$61.50	56	A66G32	\$37.00	55

*Spreadlight door glass furnished unless otherwise specified.
Floodlight furnished with socket positioned for use with 1000-watt lamp unless otherwise specified.
Lamp not included. Use floodlight lamp only 500/1000 watts.

G-E WET-NICHE UNDERWATER FLOODLIGHT

TYPE L-33 — 100/250/400 WATTS



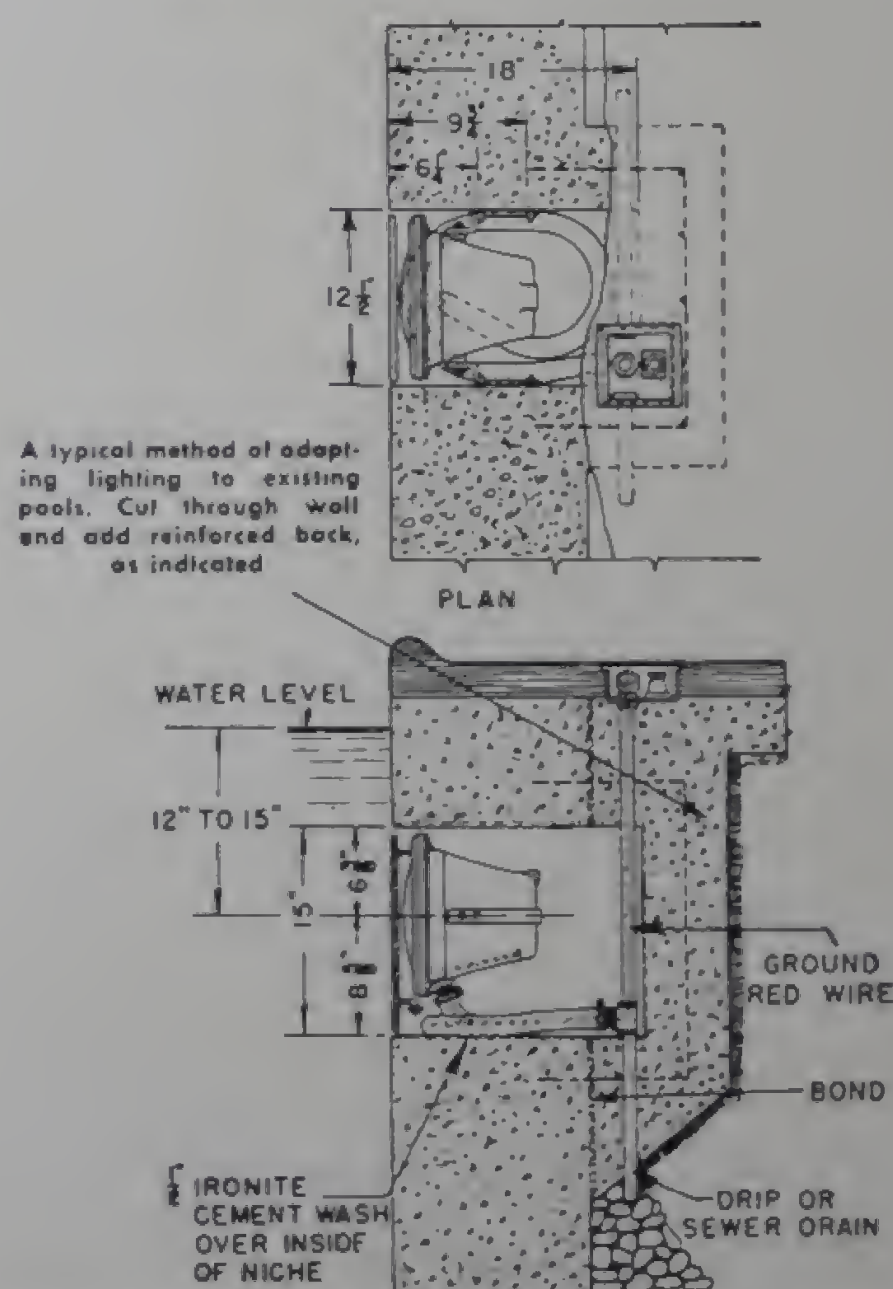
* For satisfactory service from submerged floodlights, provision for breathing and draining is strongly recommended.

A cast-bronze, watertight floodlight used principally in electric fountains and swimming pools, offering high efficiency and long life, a variety of beam angles, clear or colored lighting effects, and assurance against deterioration in chemically treated or salt water. Also recommended for general floodlighting in atmosphere too wet for ordinary weather-proof units. Reflectors are silvered glass.

Cat. No.	Price Each	Weight in Lbs	
		Ship.	Net
TYPE L-33* WITH ANGLE BRACKETS			
2AL33FDL1	\$130.00	45	37
TYPE L-33* WITH SUSPENSION HOOKS AND ARMS			
2AL33FDK1	\$140.00	45	37
TYPE L-33* FOR CONDUIT SUPPORT (NO BRACKETS)			
2AL33FDX1	\$125.00	45	37

*Lamp not included. Use floodlight service lamp only. 250/400 watts submerged, 100 watts in air.
Be sure to specify type of door glass when ordering. Price includes plain, heavily stippled, or spreadlight clear glass.
Colored door glass furnished instead of clear glass at \$4.00 each additional. Plain or heavily stippled pattern only — not spreadlight. Colors available red, amber, green or blue.
For ordering door glass only, refer to table page 214.
Dimensions, photometric data and accessories shown on page 214.

SUGGESTED SWIMMING POOL INSTALLATION PRACTICE



Side-elevation section of wet-niche, using Type L-33 projector

G-E WET-NICHE UNDERWATER FLOODLIGHT

TYPE L-41 — 500/1000/1500 WATTS



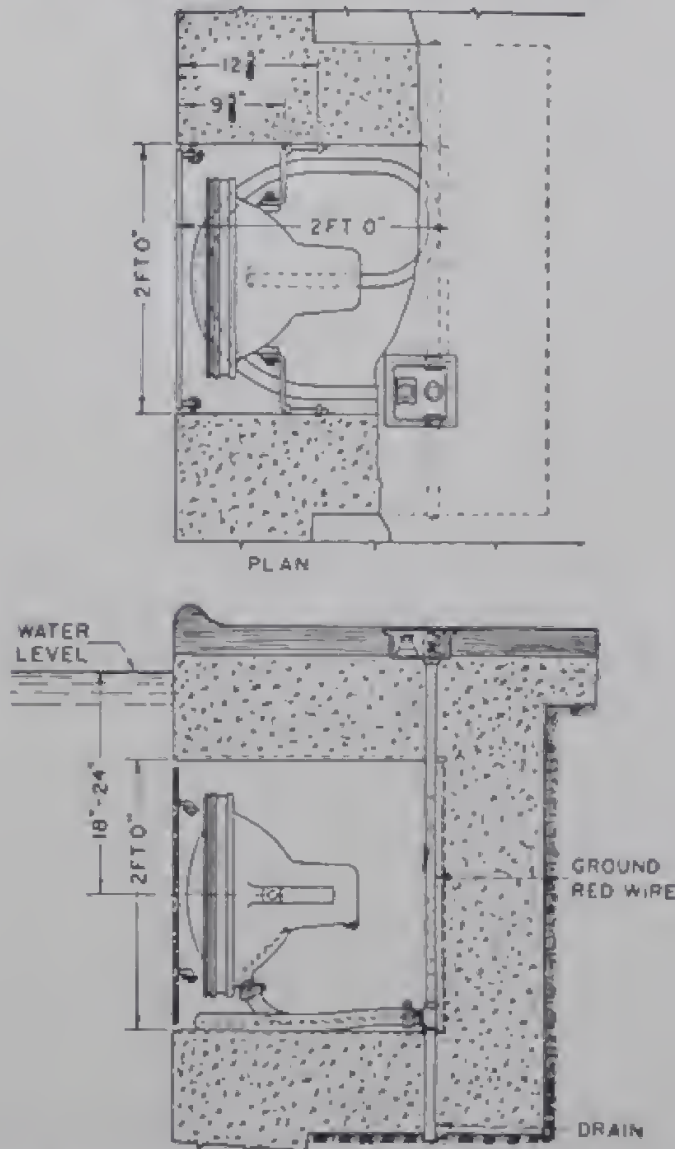
*For satisfactory service from submerged floodlights, provision for breathing and draining is strongly recommended.

A cast-bronze, watertight floodlight used principally in fountains and swimming pools, offering high efficiency and long life, a variety of beam angles, clear or colored lighting effects, and assurance against deterioration in chemically treated or salt water. Also recommended for general floodlighting in atmosphere too wet for ordinary weather-proof units. Reflectors are silvered glass.

Cat. No.	Price Each	Weight in Lbs	
		Ship.	Net
TYPE L-41* WITH OVAL BASE AND TRUNNION BRACKET			
2AL41EAA1	\$260.00	113	68
TYPE L-41* WITH SUSPENSION HOOKS AND ARMS			
2AL41EAK1	245.00	113	68

*Lamp not included. Use floodlight service lamp only. 500/1000/1500 watts submerged, 500 watts in air. Be sure to specify type of door glass when ordering. Price includes plain, heavily stippled, or spreadlight clear glass. Colored door glass furnished instead of clear glass at \$16.00 each additional. Plain or heavily stippled pattern only — not spreadlight. Colors available — red, amber, green or blue. For ordering door glass only, refer to table page 214. Dimensions, photometric data and accessories shown on page 214.

SUGGESTED SWIMMING POOL INSTALLATION PRACTICE

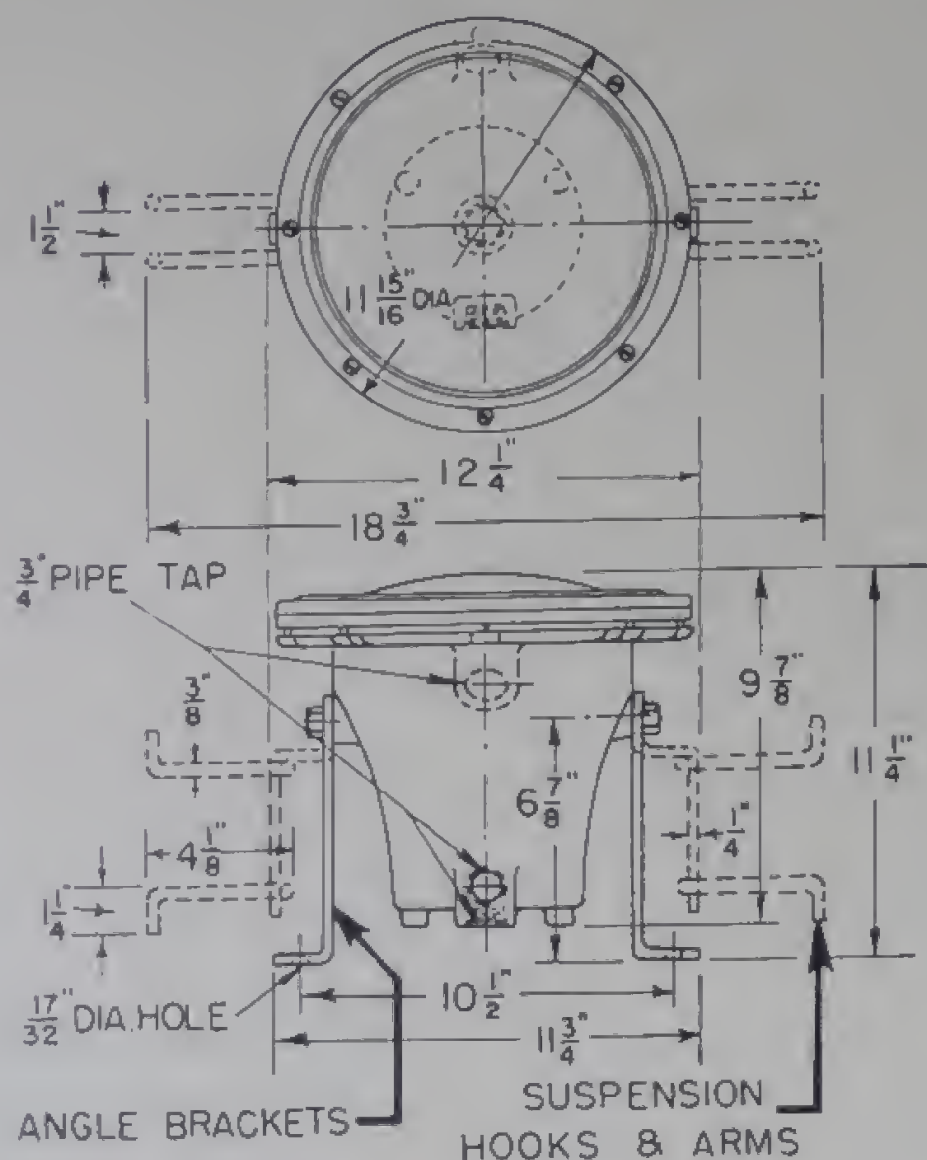


Side-elevation section of wet-niche, using Type L-41 projector

G-E WET-NICHE UNDERWATER FLOODLIGHTS

TYPE L-33 — 100/250/400 WATTS TYPE L-41 — 500/1000/1500 WATTS

DIMENSIONS



PHOTOMETRIC DATA

L-33 UNDERWATER FLOODLIGHT WITH G-30 LAMP*

Type of Door Glass	Beam Angle in Degrees		Factor "F"	Beam Lumens	Beam Candle-power (Avg Max)
	Vert	Hor			
Plain.....	20	20	0.35	2570	60,000
Heavily stippled	80	80	1.68	3430	6,700
Spreadlight.....	24	50	0.43x0.93	3170	22,000

*400-watt Floodlight Service Lamp, G30, 3-inch light centre length, 6600 lumens.

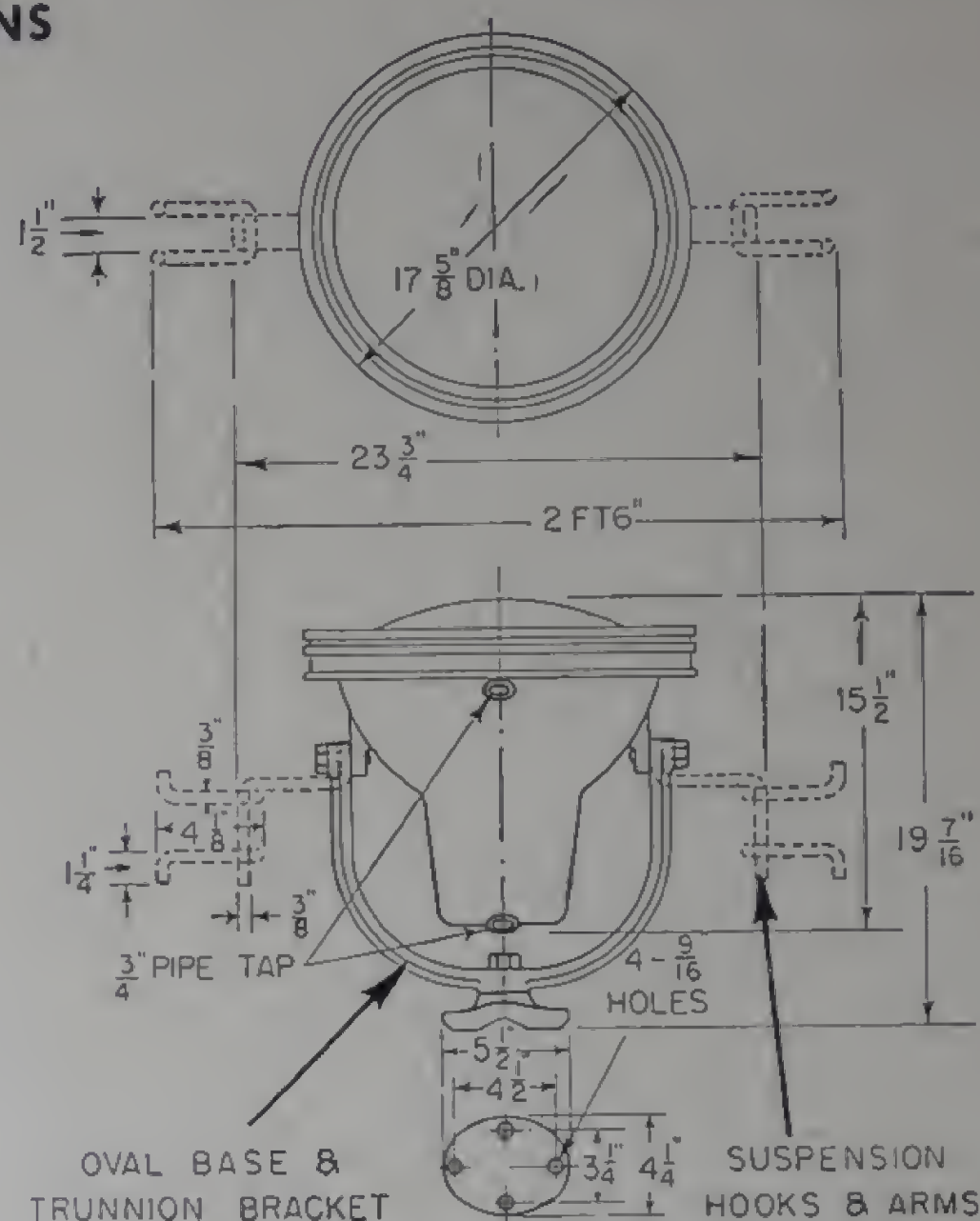
Data are approximate, for estimating.

Factor "F" times distance from projector to surface lighted gives approximate diameter of beam spread. For smaller lamps, reduce lumen and candlepower values approximately in proportion to lamp wattage.

ACCESSORIES AND PRINCIPAL PARTS

Cat. No.	Price* Each	Description
4830577G1	\$ 6.25	Door Glass—10 3/8" diameter Plain clear
4830577G2	10.00	Plain red
4830577G3	10.00	Plain green
4830577G4	10.00	Plain amber
4830577G5	10.00	Plain blue
4830578G1	6.25	Heavy stippled clear
4830578G2	10.00	Heavy stippled red
4830578G3	10.00	Heavy stippled green
4830578G4	10.00	Heavy stippled amber
4830578G5	10.00	Heavy stippled blue
4815467G1	6.25	Spreadlight clear
3775391	.65 ea.	Gasket for door glass (3 required)
4802488P1	9.25	Silvered-glass reflector
49X349	1.00	Socket

*When purchased separately.



PHOTOMETRIC DATA

L-41 UNDERWATER FLOODLIGHT WITH G-48 LAMP*

Type of Door Glass	Beam Angle in Degrees		Factor "F"	Beam Lumens	Beam Candle-power (Avg Max)
	Vert	Hor			
Plain.....	14	14	0.25	13650	700,000
Heavily stippled	54	54	1.02	14250	70,000
Spreadlight.....	14	48	0.25x0.89	13650	170,000

*1500-watt Floodlight Service Lamp, G48, 5 1/4-in. light centre length, 30,000 lumens.

Data are approximate, for estimating.

Factor "F" times distance from projector to surface lighted gives approximate diameter of beam spread. For smaller lamps, reduce lumen and candlepower values approximately in proportion to lamp wattage.

ACCESSORIES AND PRINCIPAL PARTS

Cat. No.	Price* Each	Description
4830571G1	\$11.00	Door Glass—15 3/4" diameter Plain clear
4830571G2	27.75	Plain red
4830571G3	27.75	Plain green
4830571G4	27.75	Plain amber
4830571G5	27.75	Plain blue
4830569G1	11.00	Heavy stippled clear
4830569G2	27.75	Heavy stippled red
4830569G3	27.75	Heavy stippled green
4830569G4	27.75	Heavy stippled amber
4830569G5	27.75	Heavy stippled blue
3706486G1	11.00	Spreadlight clear
5550556	1.25 ea.	Gasket for door glass (3 required)
9437619AAP1	26.00	Silvered-glass reflector
45X841	1.35	Socket

*When purchased separately.

G-E ELECTRIC FOUNTAIN EQUIPMENT



Installations of G-E Typical Electric Fountain Settings Showing Day and Night Views

In enhancing charm and increasing utilization of any park, garden, or estate, in providing a dignified but striking commercial display, as a handsome personal or civic memorial — the modern electric fountain is without equal in the floodlighting field.

Standardized groups of specialized components are furnished by G-E so as to simplify construction while allowing much freedom for individual fountain design.

Electric fountains produced by G-E are thoroughly modern in design and a definite asset to any park, public or private. Installations are such that color and water effects are continually changing, yet all operation is automatic and requires only

initial push-button actuation. Although each fountain listed below, when properly installed, is capable of providing spectacular display as a unit, several may be combined to produce more elaborate decorative effects. For best results, the smaller fountains should be located where there is little or no extraneous lighting.

Much care should be given to basin design and setting of the electric fountain in anticipation of daylight operation of water effects. Execution in concrete, tile, fieldstone, precast artificial granite in various colors, glass brick, and many other materials provides limitless variation and individuality at the discretion of the consulting architect-engineers.

G-E STANDARD ELECTRIC FOUNTAINS

Type of Fountain	Lily Pond 3-Projector	Standard 9-Projector	Estate-Type 9-Projector	Standard 12-Projector	Standard 7-Projector	Standard 15-Projector	Standard 35-Projector
Reference Number	M25398H	M25389I	M25389A	M25386P	M25386A	M25390I	M25391A
Price Each	\$ 870.00	\$1900.00	\$4775.00	\$4250.00	\$5560.00	\$9500.00	\$18,900.00

FEATURES AND EQUIPMENT REGULARLY FURNISHED

Water Effects.....	No Change	No Change	Changing	Changing	Changing	Changing	Changing
Colors.....	3	3	3	3	4	4	4
Floodlights.....	3-L-33	9-L-33	9-L-33	12-L-33	7-L-41	15-L-41	35-L-41
Distribution Boxes.....	1 Type N	1 Type D	1 Special	4 Type N	1 Special	2 Special	4 Special
Drip Pan.....	None	None	None	None	1	2	4
Jets.....	44	73	73	65	65	65	121
Pump Motor.....	¾ hp, 1 ph	3 hp, 1 ph	3 hp, 1 ph	5 hp, 1 ph	3 ph, 1 ph	7½ hp, 3 ph	25 hp, 3 ph
Motor Starter.....	Manual	Magnetic	Magnetic	Magnetic	Magnetic	Magnetic	Magnetic
Lighting Contactor.....	Manual	Magnetic	Magnetic	Magnetic	Magnetic	Magnetic	Magnetic
Pump.....	22 gpm	65 gpm	65 gpm	120 gpm	120 gpm	200 gpm	500 gpm
Thrustor Values.....	None	None	3	3	3	4	4
Fire Nozzles.....	1-6 mm	1-10 mm	1-10 mm	1-12½ mm	1-12½ mm	1-15 mm	1-20 mm
Spray Nozzles.....	3-⅛"	3-6 mm	3-6 mm	3-7½ mm	3-7½ mm	3-10 mm	4-10 mm
Jet Ring.....	1-28"	1-3'	1-4' 2"	1-5' 3"	1-5' 3"	1-5' 3"	1-9' 6"
Nozzle Ring.....	None	None	In Piping*	None	None	1-4'	1-4'
Water and Lighting	3-Lighting	3-Lighting	3-Lighting	3-Lighting	7-Lighting	15-Lighting	35-Lighting
Controller.....			3 Water	3 Water	3 Water	5 Water	5 Water
Flexible Hose.....	None	9 Lengths	In Piping*	12 Lengths	7 Lengths	15 Lengths	35 Lengths

*One set of special piping and cast iron ornamental basin supplied.

UNION METAL STEEL POLES

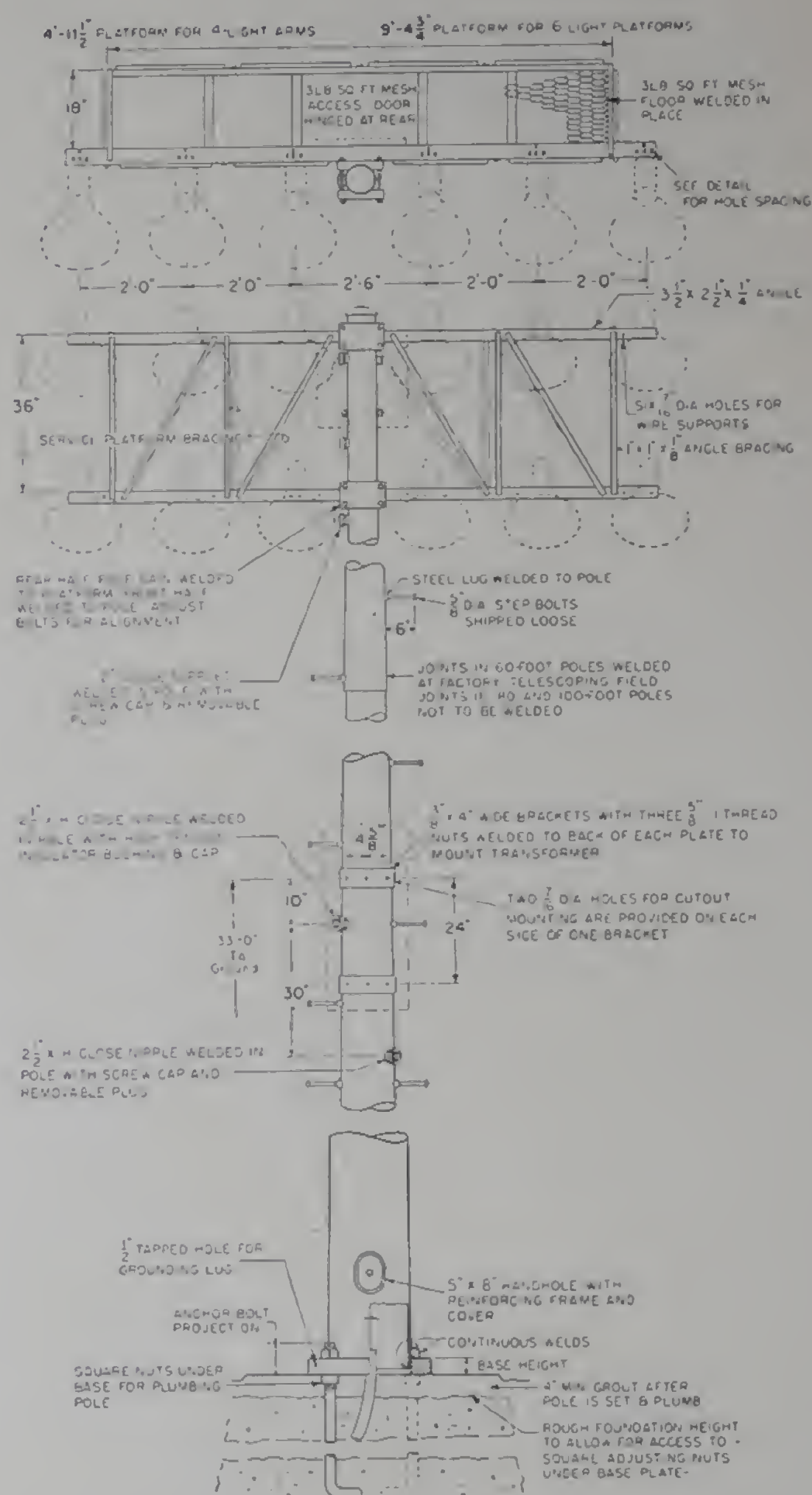
FOR SPORTS LIGHTING



Designed especially for sports floodlighting; now including many improvements that aid installation and servicing. Ideal for high quality installations because of simple, clean appearance, high load capacity, long life. Mounting heights in accordance with NEMA recommended practice.

MONOTUBE POLE FEATURES

1. Poles can be completely wired, lights mounted, and positioned on the ground before erection.
2. Servicing of lights easily and safely accomplished.
3. Taper reduces wind loads, provides great strength and minimizes obstruction to spectator view if poles are placed in front of grand stand.



4. Adequate strength where it is most needed without excess weight.
5. Anchor base construction simplifies erection, permits positive alignment, avoids ground line deterioration and provides almost 100 per cent salvage if poles must be moved to new location.
6. Poles require no guying.
7. Add to the general attractiveness of your sports field layout.

Poles are equipped with reinforced handhole and cover, wire outlets, and supports for mounting service platform, transformer and distribution boxes. Safety-service platform equipped with mesh flooring

UNION METAL STEEL POLES FOR SPORTS LIGHTING

welded in place and a hinged trap door in centre. Platform with mounting frames are assembled ready to be bolted to pole.

Capacity of pole to carry the maximum number of lights indicated in the head arrangement selected, is based on using underground wiring, with floodlights not exceeding 20 in. diameter and wind loading up to 100 miles per hour. Special consideration must be given for floodlights of larger diameter or if overhead wiring is used.

40- and 60-foot poles are shipped in one piece. 80- and 100-foot poles are shipped in two sections. Upper and lower sections are carefully shop-fitted before shipment and properly marked for field identification with one coat of rust resisting paint before shipment. Poles are painted inside and out. Template drawings for setting foundation bolts furnished. Foundation bolts shipped in advance of poles if requested.

Design No.	Price Each	Pole Height (Feet)	No. of Floodlights	Shipping Wt (Lbs.)	
				Complete	Anchor Bolts Only
544-Y 40	\$ 506.00	40	2*	1350	230
544-Y 26	673.00		8†	1508	248
544-Y 27	721.00		12	1630	260
544-Y 28	1005.00	60	8†	2595	315
544-Y 29	1064.00		12	2710	360
544-Y 38	1204.00		16†	2803	363
544-Y 30	1314.00		24	3034	374
544-Y 31	1330.00	80	8†	3906	566
544-Y 32	1386.00		12	4011	571
544-Y 39	1536.00		16†	4095	575
544-Y 33	1639.00		24	4336	586
544-Y 34	1876.00	100	8†	5840	950
544-Y 35	1924.00		12	5968	958
544-Y 37	2075.00		16†	6050	960
544-Y 36	2178.00		24	6282	972

When ordering, specify the pole height, the number of lights to be mounted and the design number applying to this combination, as shown in the table above.

Design numbers include pole with anchor base and pole top, anchor rods and nuts, pole steps, combination safety-service platform and floodlight mounting frames.

Design numbers do not include floodlights, transformer or distribution boxes.

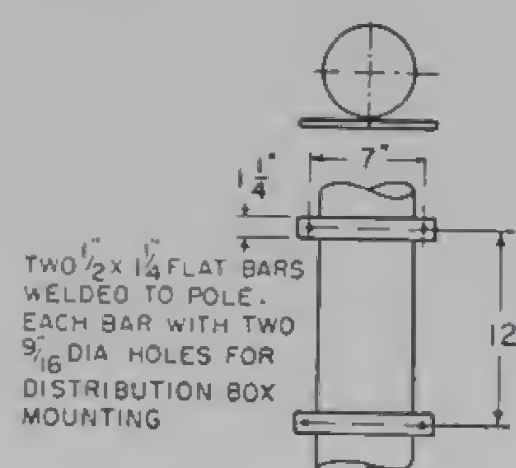
*2-light mounting not equipped with service platform.
†8- and 16-light poles can be equipped with an auxiliary rear frame to permit front and back mounting of floodlights. Specify Cat. No. 1YB2561 and add \$45.00 for each frame to price shown above, shipping weight is 118 lbs. for each frame.

BASE DATA

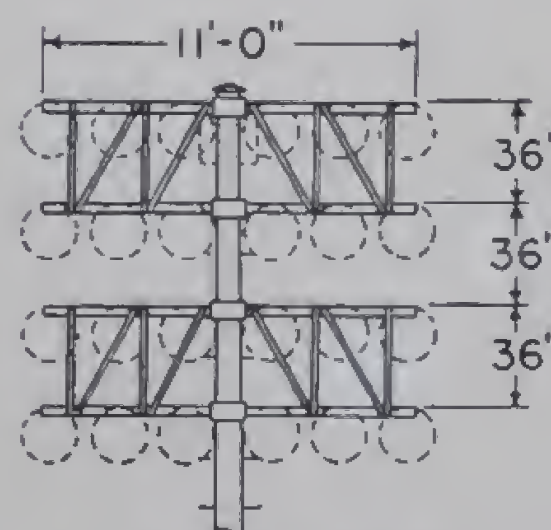
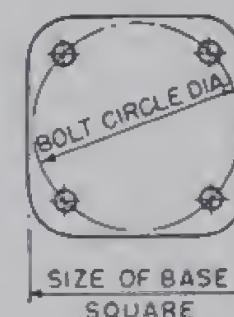
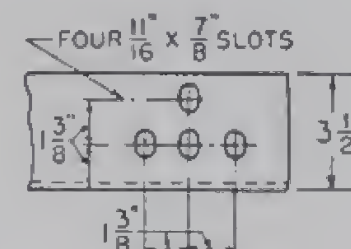
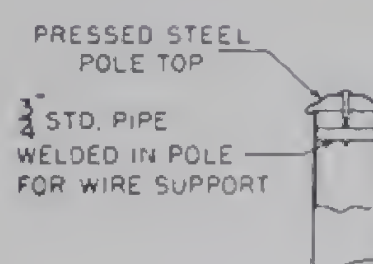
Pole Height (Ft)	Base Square (Ins)	Base Height (Ins)	Bolt Circle Diameter (Ins)	Anchor Bolt		
				Diameter (Ins)	Projection (Ins)	Length (Ins)
40	17	2½	16	1¾	5	60
60	21	3	20	2	5¾	60
80	24½	3½	23½	2¼	6½	80
100	26½	3½	25½	2½	7	120

SHAFT DATA

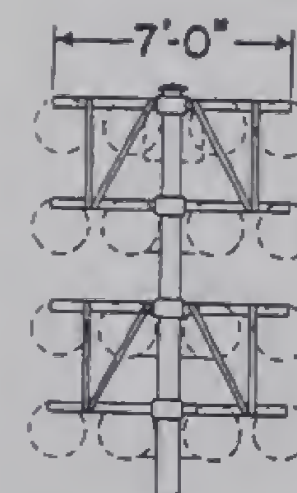
Length (Ft)	Nominal		Wall Thickness at Bottom (Ins)	Strength at Bottom (Ft-Lbs)
	Bottom Diameter (Ins)	Top Diameter (Ins)		
40	11⅝	6	.250	150,000
60	14	6	.312	269,000
80	16½	6	.312	378,000
100	18	6	.359	515,000



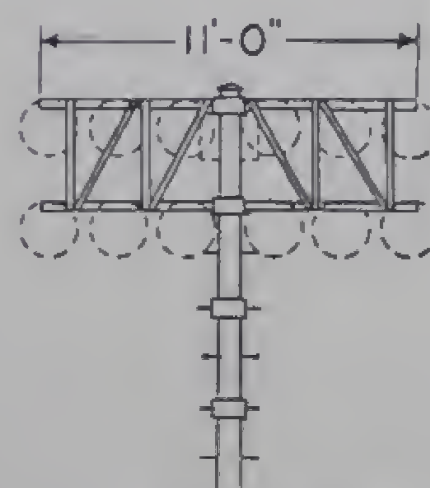
Provision is made for one box at each service platform
Max size of box
20 in. high 6 in. deep 21 in. wide



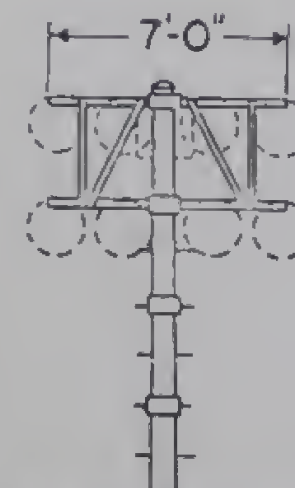
18 to 24 floodlights



14 to 16 floodlights



10 to 12 floodlights



4 to 8 floodlights



2 floodlights

G-E FLUORESCENT LAMP BALLASTS



Experienced architects, purchasing agents, and other experts who prepare specifications for fluorescent-lighting installations always choose ballasts with the utmost care. They realize that ballasts are both the heart and the brain of an efficient lighting installation. Poorly designed ballasts frequently result in early end-blackening of lamps, aggravate the effects of line-voltage variations, and materially shorten lamp life.

These experts know, too, that the electrical characteristics of good ballasts must be carefully co-ordinated with those of the lamps, and that the ballast-manufacturing processes must be rigidly controlled to obtain uniformity of characteristics in all units of the same rating.

The complete line of General Electric ballasts for fluorescent lamps meets these requirements. The design of all ratings conform to the specifications of the lamp manufacturers. Uniformity is maintained by automatic winding of coils, silver-soldering of all connections, machine assembly of core and coils, and by other advanced manufacturing methods. Depending on the design, every G-E ballast receives from 7 to 10 tests during manufacture.

The use of G-E ballasts in fluorescent-lighting installations is extra assurance of high operating efficiency, long lamp life, and a high return on the investment in the form of better lighting.

Canadian General Electric Company are the largest manufacturers of fluorescent ballasts in Canada and are the only suppliers of a complete line of ballasts to meet the entire requirements of fluorescent fixture manufacturers. At present over 130 ratings of hot cathode, cold cathode, instant start, slimline and circline lamp ballasts are available for frequencies of 25, 50 and 60 cycles and direct current operation. A few representative types are shown below.

The ballast for the fluorescent lamp serves to limit the current to the proper operating value. Specifically designed ballasts are required for each lamp rating, frequency, and voltage range. The ballast must be designed to forestall early end-blackening of the lamp — to smooth out the effect of line voltage variations, and assure rated lamp life. Further, the ballast should be quiet in operation, and must itself have long life. It may be said that a fluorescent lighting installation is no better than its ballasts.

G-E MERCURY LAMP BALLASTS



GENERAL ELECTRIC BALLASTS FOR HIGH-INTENSITY MERCURY VAPOR LAMPS

High-intensity mercury-vapor lamps are modern and highly efficient lighting tools for a wide variety of applications. The successful operation of these lamps depends on a ballast that must give proper starting and running characteristics, and must be a dependable source of power. As a result of close coordination of ballast design and lamp design, General Electric has developed lines of ballasts that assure matched performance with the lamps and most efficient operation.

Ballast Construction

These ballasts are accurately designed with permanent characteristics which will insure successful lamp operation. They are carefully fabricated from highest-quality materials and have ample exposed core surfaces (except weatherproof units) to dissipate the heat with resulting low internal temperatures and consequent long life. The weatherproof ballasts are assembled in a sheet metal housing which is filled with a heat conducting compound.

Mechanically, the ballasts are exceptionally sturdy. A strong internal framework supports the ballast and holds the core and coil and housing firmly together. This clamping structure is strong enough to support the ballast and lamp for pendent installation.

Power Factor

For stable operation high-intensity mercury vapor lamps require ballast, such as a high-reactance transformer. The use of such inductive ballast results in a low line power-factor (50%-65% for the various lamps) unless some method of power-factor improvement is used. The use of the G-E Tulamp ballast or other ballasts having improved power-

factor is recommended. Reduced wiring cost and compliance with regulations concerning power-factor are thus assured.

Tulamp ballasts make use of the split-phase principle in which one lamp is ballasted by inductance and the other lamp primarily by capacitance. The lagging power-factor of the "lag" branch offsets the leading power-factor of the "lead" branch, resulting in an over-all power-factor of above 95%. Furthermore, the phase displacement of currents in the two branches results in a materially reduced stroboscopic effect when the lamps are mounted adjacent to one another in pairs.

High-power-factor in the single-lamp enclosed ballasts is obtained by the use of a G-E Pyranol capacitor which is included in the housing.

Types of Ballasts

Enclosed single-lamp ballasts are listed for the H-1, H-2, H-4 and H-5 lamps. Roomy junction boxes are built into these ballasts. The ballasts can be mounted on the wall or ceiling or suspended from conduit. Thus, they can be installed in a variety of ways easily and quickly.

The enclosed single-lamp ballasts for H-9 lamps are provided with a junction box for direct conduit connection of line and lamp. These units are suitable for wall mounting.

Enclosed Tulamp ballasts are provided for the H-1 and H-5 lamps. As only one ballast is required for two lamps, lower first cost and installation cost result. These are suitable for wall or ceiling mounting. A large junction box is a part of the housing.

Core-and-coil ballasts and weatherproof ballasts

G-E MERCURY LAMP BALLASTS

are available for all except the H-9 lamp. Further information will be supplied on request.

Temperature and Ventilation

To prevent damage to the ballasts for the H-9 high-intensity mercury-vapor lamp, it is vital that

the ballasts be installed so as to permit free circulation of air around them, and they should always be mounted vertically with the wiring compartment at the bottom. Ambient temperature of any ballasts for high-intensity mercury-vapor lamps (H-1 to H-9) inclusive should never exceed 45°C.

Cat. No. of Ballast	Price Each	Frequency in Cycles	Circuit Voltage	Approx. Watts Loss	Line Power Factor Per Cent (Approx.)	Approx. Wt. in Lb.		Approx. Dimensions		Con- nection Fig.
						Net	Ship.	Fig.	Item	
ENCLOSED TULAMP BALLAST—FOR 400 WATT H-1 LAMP										
89G14	\$42.65	60	118	80	95	39	42	7	1	19
89G15	42.65	60	236	70	95	39	42	7	1	19
ENCLOSED SINGLE LAMP BALLAST—FOR 400 WATT H-1 LAMP										
2118	\$31.20	25	208/230	34	50	18	20	6	...	39
89G114	29.25	60	118	48	90	28	31 $\frac{1}{4}$	9	3	21
89G115	29.25	60	236	52	90	28	31 $\frac{1}{4}$	9	3	21
89G112	21.50	60	118	40	60	23	26	9	2	22
89G113	21.50	0	236	45	60	23	26	9	2	22
ENCLOSED SINGLE LAMP BALLAST—FOR 250 WATT H-2 LAMP										
89G124	\$29.25	60	118	45	90	28	31 $\frac{1}{4}$	9	3	21
89G125	29.25	60	236	50	90	29	32	9	4	21
89G122	21.50	60	118	40	45	23	26	9	2	22
89G123	21.50	60	236	45	45	26 $\frac{1}{2}$	30	9	3	22
ENCLOSED SINGLE LAMP BALLAST—FOR 100 WATT H-4 LAMP										
19A1	\$31.00	25	115	55	50	27	29	9	3	30
89G144	23.45	60	118	23	90	15	17	9	1	26
89G145	23.45	60	236	23	90	15	17	9	1	26
59G46	14.65	60	115	22	50	8 $\frac{1}{2}$	9	15	.....	23
89G142	13.65	60	118	22	50	8	9	13	1	20
89G143	14.65	60	236	22	50	8	9	13	1	20
ENCLOSED SINGLE LAMP BALLAST—FOR 250 WATT H-5 LAMP										
89G54	\$42.65	60	118	72	95	36	39	7	1	19
89G55	42.65	60	236	70	95	36	39	7	1	19
ENCLOSED SINGLE LAMP										
89G154	\$29.30	60	118	37	90	28	31 $\frac{1}{4}$	9	3	21
89G155	29.30	60	236	40	90	28	31 $\frac{1}{4}$	9	3	21
89G152	21.50	60	118	35	50	23	26	9	2	22
89G153	21.50	60	236	38	50	23	26	9	2	22
ENCLOSED SINGLE LAMP BALLAST—FOR 3000 WATT H-9 LAMP										
59G212	\$234.10	60	230	92	90	160	190	17	.....	28
59G213	175.55	60	460	80	90	135	160	18	1	28
59G214	175.55	60	575	65	90	130	155	18	2	28

ELECTRICAL OPERATING DATA

Lamp Type No.	Lamp			Ballast Secondary Open Circuit V	Approximate Line Current in Ampres							
	Watts	Volts	Amperes		Single-lamp, High Power Factor				Single-lamp, Normal Power Factor		Tulamp	
					115 Volts	230 Volts	460 Volts	575 Volts	115 Volts	230 Volts	115 Volts	230 Volts
H-1	400	137	3.2	220	4.5	2.25	...	...	6.0	3.0	7.3	3.65
H-2	250	70	3.9	150	3.0	1.5	...	...	5.6	2.8	...	....
H-4	100	130	0.9	245	1.0	.55	...	...	2.0	1.0	...	....
H-5	250	135	2.1	250	2.5	1.25	...	...	5.0	2.5	4.9	2.80
H-9	3000	525	6.1	850	...	15.00	7.5	6.0	...	...	...	....

G-E MERCURY LAMP BALLASTS

DIMENSIONAL DIAGRAMS

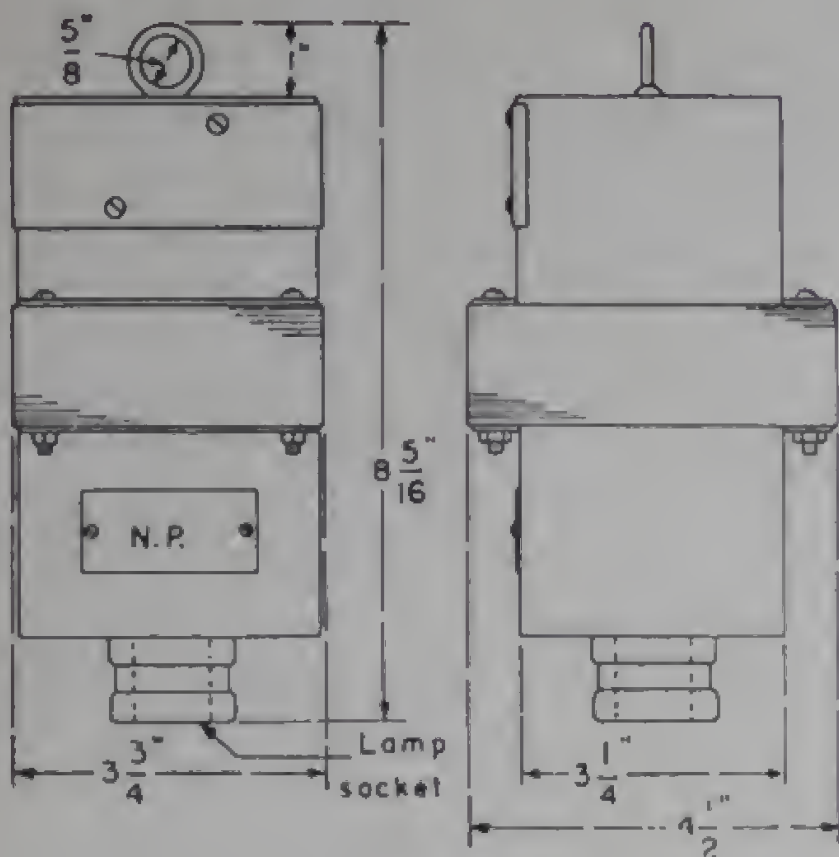
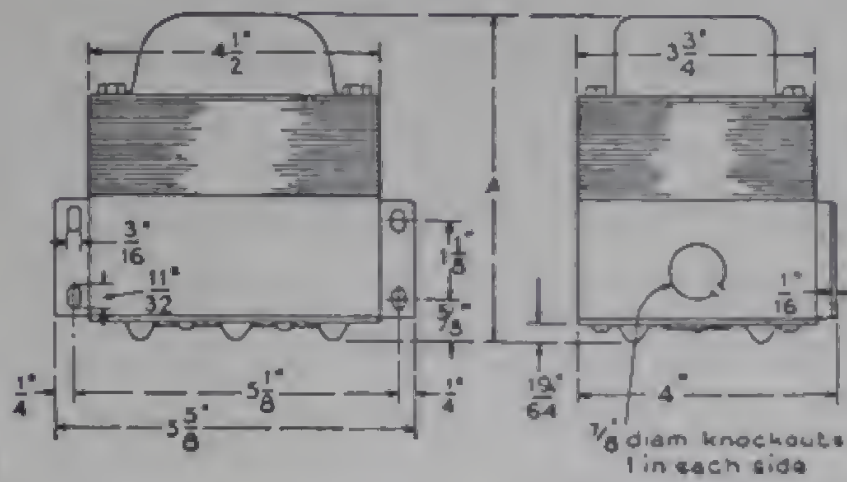
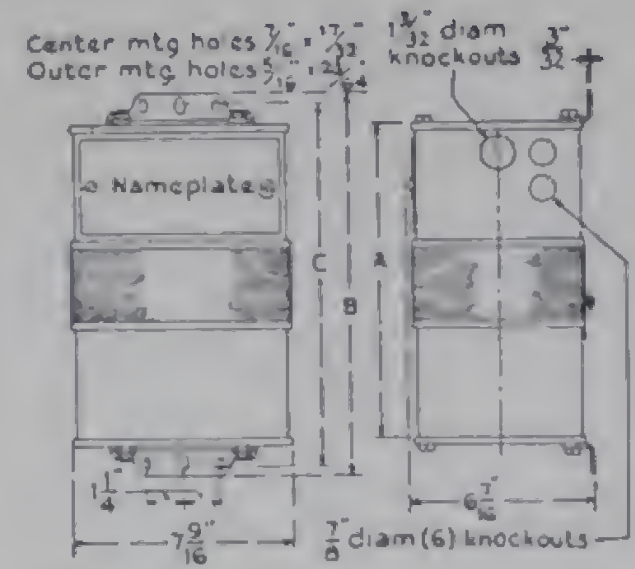


Fig. 15



Item	Dimensions in Inches (Fig. 13)	
	A	
1	5	
2	5 1/2	

Fig. 13



Item	Dimensions in Inches (Fig. 7)		
	A	B	C
1	10 15/16	13 1/8	12 1/4
2	11 7/16	13 5/8	12 1/4

Fig. 7

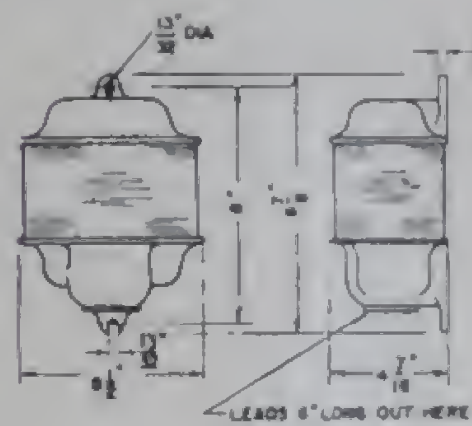
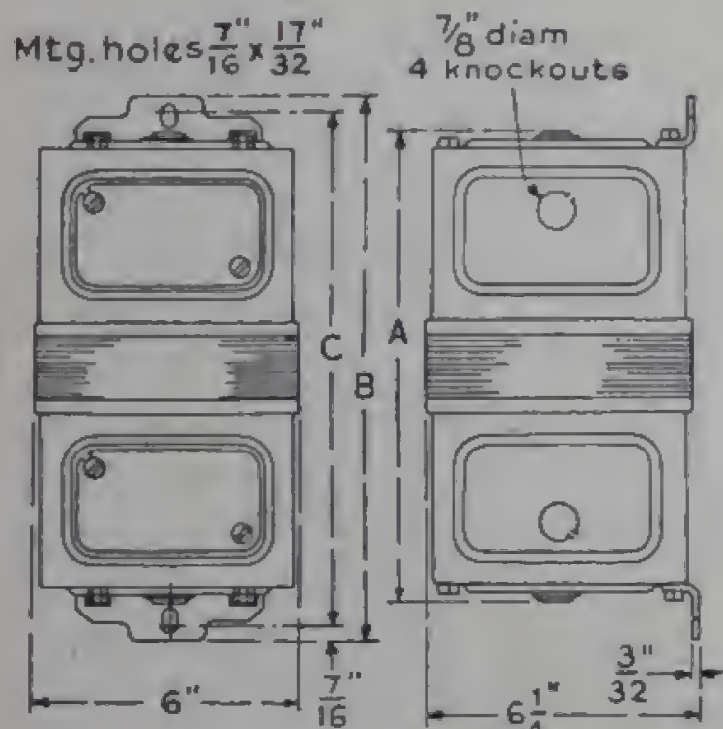


Fig. 6



Item	Dimensions in Inches (Fig. 9)		
	A	B	C
1	9 15/16	11 5/16	10 7/16
2	10 9/16	11 15/16	11 1/16
3	10 15/16	12 5/16	11 7/16
4	11 3/16	12 9/16	11 11/16
5	11 9/16	12 15/16	12 1/16
6	11 15/16	13 1/8	12 1/4

Fig. 9

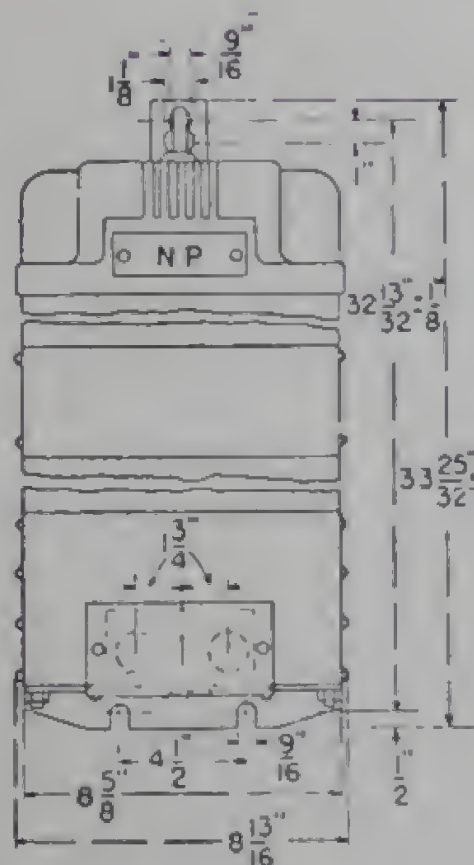


Fig. 19

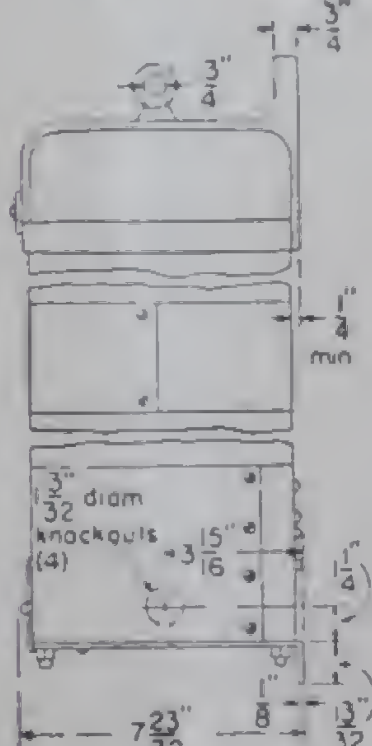
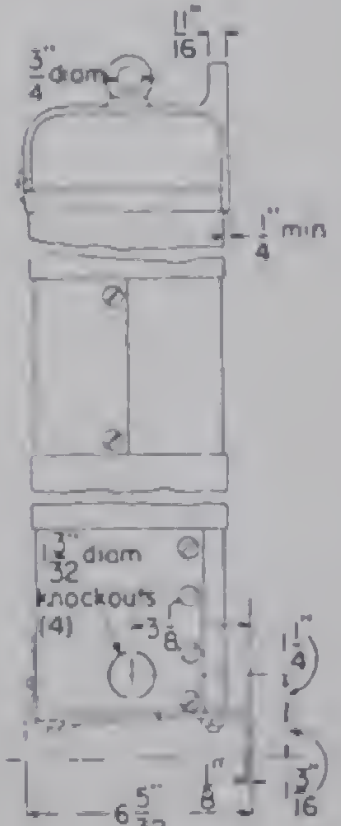
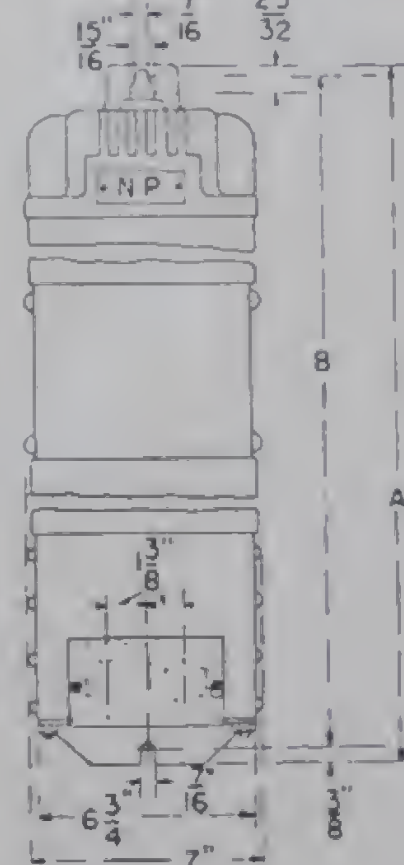


Fig. 18



Item	Dimensions in Inches (Fig. 18)	
	A	B
1	37 3/16	36 1/16
2	36 7/16	35 3/16

G-E MERCURY LAMP BALLASTS

WIRING DIAGRAMS

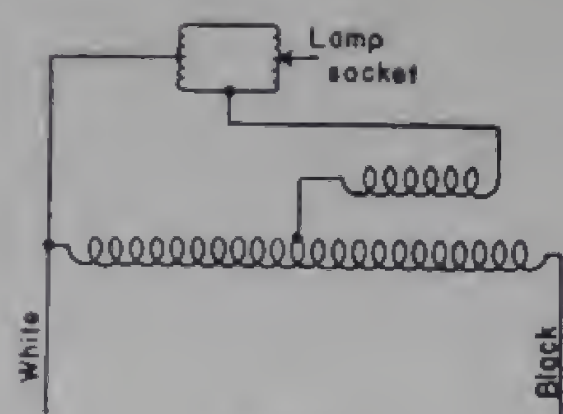
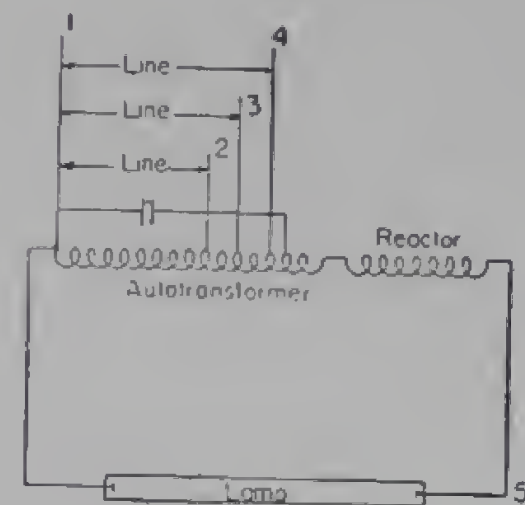
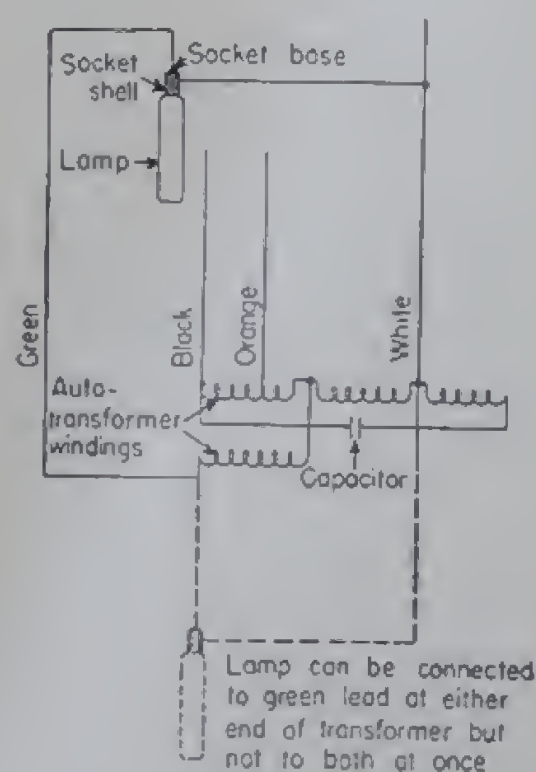


Fig. 23



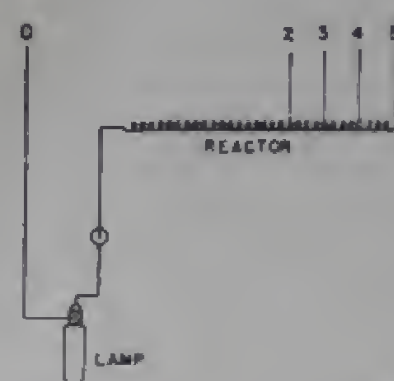
Line Voltage			Connect Line to Lead No. 1 and
230-volt Design	460-volt Design	575-volt Design	
219	437	546	Lead No. 2
230	470	575	Lead No. 3
241	483	603	Lead No. 4

Fig. 28. Enclosed ballasts for H-9 lamps.



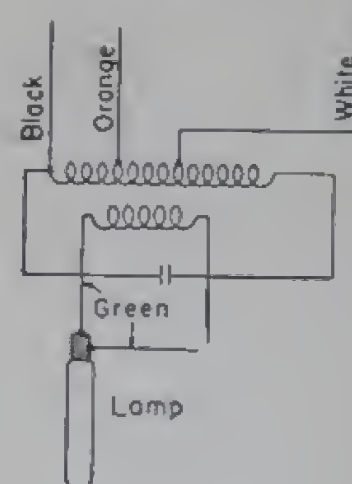
Line Voltage		Connect line Leads to White and
118-volt Design	236-volt Design	
100-110	200-220	Orange
110-125	220-250	Black

Fig. 21. Enclosed high-power-factor ballasts for H-1, H-2 and H-5 lamps.



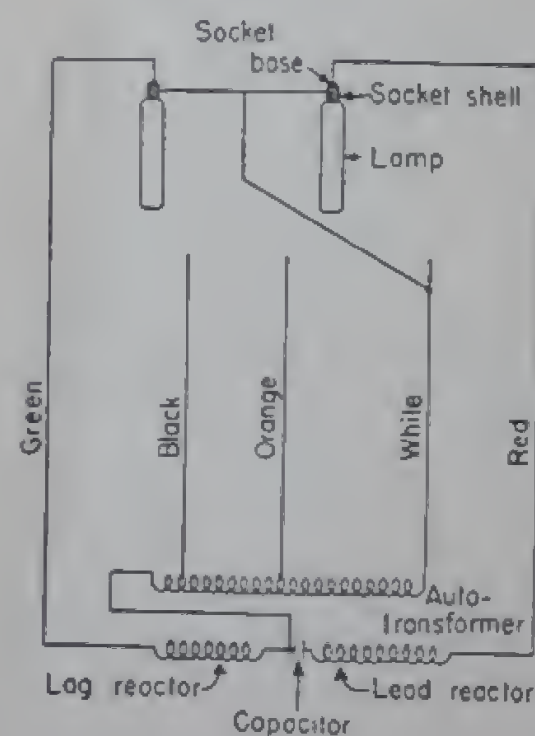
Line Voltage	Connect Line Leads to "0" and
208	Lead 2
220	Lead 3
230	Lead 4
240	Lead 5

Fig. 29



Line Voltage		Connect Line Leads to White and
118-volt Design	236-volt Design	
100-110	200-220	Orange
110-125	220-250	Black

Fig. 26. Enclosed high-power-factor ballasts for H-4 lamps.



Line Voltage		Connect Line Leads to White and
118-volt Design	236-volt Design	
100-110	200-220	Orange
110-125	220-250	Black

Fig. 19. Enclosed Tulamp ballasts for H-1.

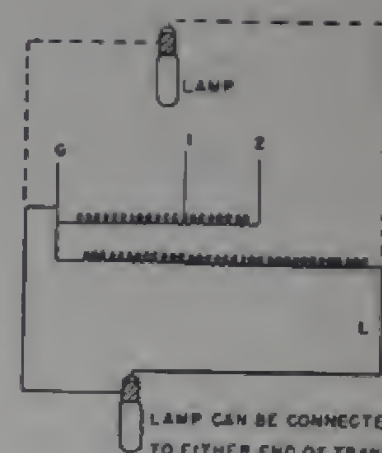
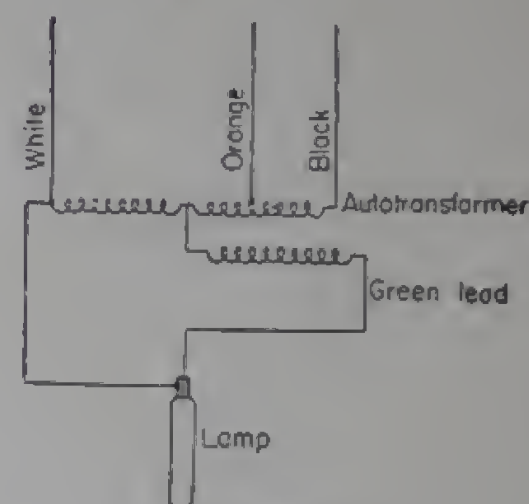
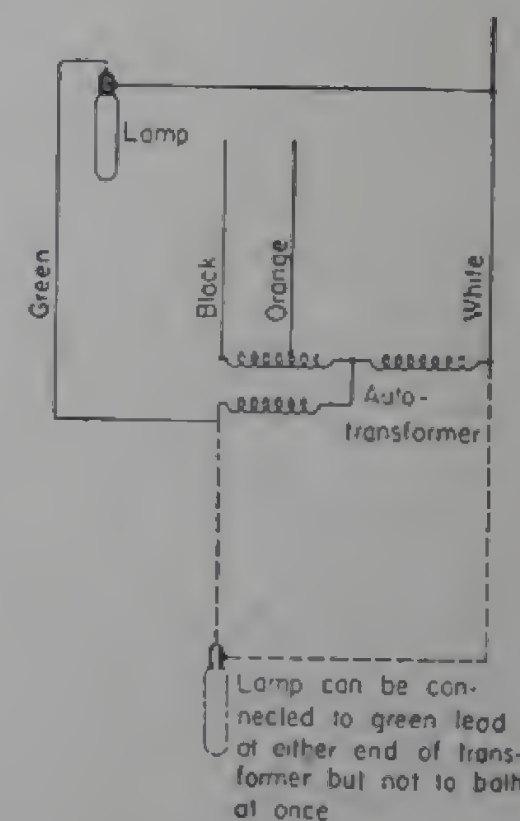


Fig. 30



Line Voltage		Connect Line Leads to White and
118-volt Design	236-volt Design	
100-110	200-220	Orange
110-125	220-250	Black

Fig. 20. Core-and-coil ballasts for H-1, H-2, H-4, and H-5 lamps. Enclosed uncorrected-power-factor ballasts for H-4 lamps.



Line Voltage		Connect Line Leads to White and
118-volt Design	236-volt Design	
100-110	200-220	Orange
110-125	220-250	Black

Fig. 22. Enclosed, uncorrected-power-factor ballasts for H-1, H-2, and H-5 lamps.

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